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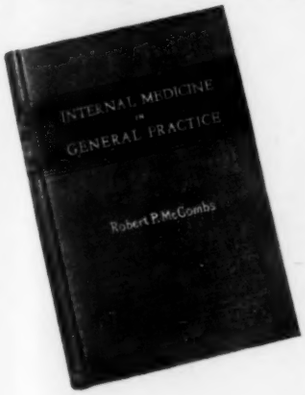

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PRIMARY DYSMENORRHEA

J. H. RANDALL, M.D.
AND
L. D. ODELL, M.D.
IOWA CITY

Dysmenorrhea occurs in approximately 35 per cent of menstruating women.[1] Primary dysmenorrhea is characterized by painful menstruation in the absence of demonstrable pelvic disease and is thus differentiated from secondary dysmenorrhea.

Primary dysmenorrhea commences with the menarche in 65 per cent [2] and a few years later in 35 per cent. Anovulatory cycles have been suggested as the basis for the early painless periods in the later group. The distress starts with the menstrual flow and consists of lower abdominal cramps which may or may not be associated with backache, headache, nausea and vomiting. It persists through one or two days of the flow. The woman with primary dysmenorrhea may complain of prodromal irritability, backache, headache and gastrointestinal upsets. The dysmenorrhea ordinarily disappears, or is considerably relieved, after the birth of the first child. After the age of 30 in the nulliparous woman the dysmenorrhea becomes irregular and of lessened intensity, and near the menopause it usually disappears.

Taylor [3] concludes that "normal menstruation should be free from all pain and discomfort and should not cause depression of physical and mental activity." In the light of evidence presented later, one would question her definition of "normal menstruation." Hamblen [2] has used various estrogenic substances as substitutional therapy in primary dysmenorrhea and has reported encouraging results. He believes that such patients suffer from a relative estrogen deficiency resulting in overactivity of the sympathetic nervous system with production of vasoconstriction and pain. Kurzrok [4] observed that primary dysmenorrhea does not occur without ovulation, a very significant fact which has not been entirely appreciated.[4a] Other investigators have attributed primary dysmenorrhea to progesterone [5] and estrogen imbalance as well as to other glandular deficiencies. Davis [6] claims to have evidence of presacral neuritis in 70 per cent of his patients.

Recent experimental work has elucidated somewhat the physiology of primary dysmenorrhea. Sturgis and Albright [7] were able to produce proliferative endometrium (endometrial biopsy) just prior to menses by intramuscular estradiol benzoate (progynon B), and the succeeding periods were painless. Later they [8] reported identical results with diethylstilbestrol and estradiol dipropionate. In the course of 209 menstrual periods treated in this manner, relief was obtained 147 times (70 per cent). This work was supported in selected cases by endometrial biopsies which revealed no evidence of ovulation when the therapy had abolished pain. However, it is apparent that any method of therapy designed to inhibit ovulation for the relief of painful menstruation has no permanent clinical value. Sturgis found that when estrogenic therapy was given for primary dysmenorrhea for several months the pain returned in spite of continuance of the treatment. He suggests that artificially produced anovulatory menses continued over any length of time may result in permanent disturbance of the pituitary-ovarian relationship. Confirmatory work with estrogens has been reported by other investigators.[9]

Moir [10] and Wilson and Kurzrok [4] by use of small sterile rubber balloons attached to a kymograph studied intrauterine pressure changes at various times during the menstrual cycle in human subjects. In women who were menstruating normally, as judged by the regularity and amount of flow, they found that, four to seven days after a period, small rapid uterine contractions (three to five per minute) commenced and persisted for ten to fourteen days. Following this "follicular phase," contractions of deeper amplitude and longer duration (one to two minutes) appeared. These contractions ("luteal phase") increased in amplitude and reached a maximum height on the first two days of the menses. According to Kurzrok [4] the intrauterine pressure changes in women with primary dysmenorrhea are the same as in women with normal menstruation. However, in an anovulatory cycle (demonstrated by endometrial biopsy) there is complete lack of the larger, less frequent contractions ("luteal phase") and a prolongation of the smaller, more rapid ("follicular phase")

From the Department of Obstetrics and Gynecology, University Hospitals.

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10. Moir, Chassar: Proc. Roy. Soc. Med. **29:** 950-952 (June) 1936.

contractions throughout the intermenstrual period. Table 1 summarizes their findings. In a recent review of primary dysmenorrhea, Fremont-Smith [6] recognizes the importance of the experimental work of Sturgis,[11] Moir [10] and Wilson and Kurzrok [12] and believes that the strong "luteal phase" contractions during the first two days of the menses are involved in the production of pain. Bickers [13] holds a similar point of view.

MATERIAL

During the past several months we have observed 41 female university students with dysmenorrhea of such severity as to incapacitate them. The age distribution, marital status, gravidity and pelvic findings are given in table 2. Sixteen of these patients had previously received glandular therapy and 2 had had dilation and curettage with little or no relief; 9 had had elective appendectomies. In 18 out of 20 patients the administration of diethylstilbestrol (1 mg. daily for twenty days following the cessation of menstrual bleeding) resulted in the complete relief of pain at the next period. The two failures missed the expected period and one month later experienced typical painful menstruation, a phenomenon previously observed by Sturgis.[11] In 31 of these women, 55 endometrial biopsies were obtained two to four days before the onset of menses. Table 5 shows the microscopic results of these biopsies before and after treatment. In 2 patients severe uterine bleeding followed the administration of diethylstilbestrol and in 1 case hospitalization for supportive transfusion was necessary. The dysmenorrhea was treated by one of the prescriptions given in table 3.

TABLE 1.—*Uterine Motility (Kurzrok)*

	Tonus	Follicular Contractions	Luteal Contractions	Response to Pituitary Injection
Normal	Increased in follicular phase; decreased in luteal phase	+	+	Strong in luteal phase
Primary dysmenorrhea	Same	Same	Same	Same
Ovulatory menses (biopsy)	Same	Same	Same	Same
Anovulatory menses (biopsy)	Increased throughout the cycle	Same	Absent	Absent

TABLE 2.—*Primary Dysmenorrhea: Clinical Data*

	Patients	
	Number	Per Cent
Age, years		
15-17	2	4.8
18-21	20	48.7
22-25	7	17.0
Over 25	12	29.2
Married	15	36.5
Nulligravidity	40	97.5
Pelvic examination		
Uterus: Normal anterior	22	53.6
Retroverted	14	34.1
Decidedly anteflexed	3	7.3
Undeveloped	2	4.8
Adnexa: Normal	41	100.0

Note the lack of a consistent anatomic defect. Infertility was a complaint by four married patients, and examinations of their husbands disclosed sterility.

COMMENT

It is now generally agreed that there is no consistent anatomic lesion in patients suffering from primary dysmenorrhea and that earlier investigators have erred in attributing the cause directly or indirectly to some obvious or obscure anatomic finding, e. g. a retroverted, anteflexed or infantile uterus, cystic ovaries, presacral neuritis, defective uterine musculature or disturbed innervation. The presence of anatomic defects is apparently incidental and primary dysmenorrhea must be explained on some other basis.

The pain experienced in primary dysmenorrhea is evidently due to uterine contractions. This point of view is confirmed by the experimental work of Moir,[10] Kurzrok [4] and Bickers,[13] who noted that maximum discomfort is experienced during the first two days of the menstrual period at the time of the strongest luteal contractions. Clinically, one can reproduce the typical cramplike pains of primary dysmenorrhea by inserting a sound within the uterus. Women have also noticed the similarity of these pains to labor pains and afterpains.

Kurzrok [4] first observed that ovulation is a necessary precursor to painful menses. The presence of secretory endometrium (suction biopsy) in our patients, and the similar report of Sturgis and his co-workers [11] support this position. It is also true that the suppression of ovulation by diethylstilbestrol (or other estrogens) prevents the development of secretory endometrium and results in painless menstruation in patients with primary dysmenorrhea.

It is an old clinical observation that primary dysmenorrhea is often completely or partially relieved by childbearing. It is believed that this is due to freer

TABLE 3.—*Prescriptions for Dysmenorrhea*

Prescription 1		Prescription 2	
Acetylsalicylic acid	5 grains	Camphor monobromate	½ grain
Codeine	½ grain	Atropine sulfate	1/150 grain
Ergotine	1 grain	Papaverine hydrochloride	¼ grain
Atropine sulfate	1/150 grain	Acetophenetidin	3 grains
Made into one capsule		Acetylsalicylic acid	3 grains
		Made into one capsule	

It is believed that ergotine aids the relief from cramps by increasing intrauterine tone (Kurzrok, Moir and Bickers) and thus prevents the uterus from filling up, a condition which leads to uterine spasm and pain. The symptomatic relief obtained through these analgesics (prescriptions 1 and 2) is shown in table 4.

TABLE 4.—*Primary Dysmenorrhea: Results of Therapy in Twenty-Seven Patients Treated with Analgesics*

	Distribution of Symptoms		Patients with Complete Relief		Patients with Partial Relief		Patients with No Relief	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Num. ber	Per Cent
Abdominal cramps	27	100.0	18	66.6	9	33.3	0	0.0
Backache	18	66.6	14	77.7	3	16.6	1	5.5
Headache	7	25.9	5	71.4	1	14.2	1	14.2
Gastrointestinal upsets	15	55.5	13	86.6	1	6.6	1	6.6
Syncope	1	3.7	1	100.0	0	0.0	0	0.0

Prescription 1 gave the most consistent relief from symptoms.

11. Sturgis and Albright.[7] Sturgis.[8] Sturgis and Meigs.[9]
12. Wilson, Leo, and Kurzrok, Raphael: Endocrinology **27**: 23-28 (July) 1940.
13. Bickers, William: Primary Dysmenorrhea, Virginia M. Monthly **69**: 423-428 (Aug.) 1942.

egress of the menstrual discharge into the vagina through the parous cervix. The accumulation of menstrual fluid within the uterine cavity stimulates "luteal" contractions until the threshold is reached and pain results.[14] Instrumental dilation of the cervix cannot produce any permanent enlargement of the cervical canal. Obviously there is considerable difference in the permanent effect of a 10 centimeter fetal head and a 10 millimeter Hegar dilator. The Pozzi or Dudley operation (operative enlargement of the cervical canal) or the wearing of a stem pessary are advisedly condemned, but it is admitted that they do relieve dysmenorrhea, presumably by inducing permanent enlargement of the cervical canal. It has been suggested that operative or parturient dilation of the canal destroys the nerve endings or ganglion cells within the cervix. The existence of ganglion cells within the cervical substance is open to question, although they are readily found within the parametrial tissues, a location too remote to be affected by cervical dilation.

After the age of 30 years there may be incomplete shedding of the menstrual mucosa, and ovulatory cycles occur irregularly so that painful menses become less severe and less frequent. Except in isolated instances, as women approach the menopause menses are anovulatory and painless. However, some pain may be experienced by women with anovulatory cycles, provided bleeding is sufficient to distend the uterine cavity and stimulate contractions of large enough amplitude.

In primary dysmenorrhea, associated symptoms of backache, nausea, vomiting and headache can hardly be explained on an organic basis. Nausea, vomiting and spells of syncope are probably the nervous reaction of the patient to the pain. The backache may be produced by pelvic congestion or relaxation of pelvic joints. Premenstrual tension, as evidenced by abdominal pain, irritability, headache, backache and nervousness, is also on a psychogenic basis and usually does not appear until some years after the patient has been suffering from dysmenorrhea.

14. Sturgis and Albright.[7] Wilson and Kurzrok.[12]

TREATMENT

Physicians err in treating primary dysmenorrhea on the principle that it is caused by organic disease or endocrine deficiency. Frequently such patients change from one physician to another and obtain a separate diagnosis from each. The emphasis on organic or functional defects creates a poor mental attitude. In addition, they have frequently approached the menarche already conditioned for a serious ordeal by overzealous relatives and friends. The first objective in treatment should be to assure the patient that she is absolutely normal and to explain in simple terms the basic physiology of menstrual distress.

The second therapeutic objective is the relief of pain. Usually this can be done with simple analgesics, particularly after the patient realizes the nature of her complaint. Prescriptions 1 and 2 recommended in table 4 are for the more severe cases. As a rule it is necessary only to relieve the pain for the first and second days of the menstrual period. If the patient can be carried along until she has borne a child or until the age of 30 years, medical treatment becomes less essential.

In our opinion operations such as hysterectomy, uterine suspension and presacral sympathectomy are unnecessary in the treatment of primary dysmenorrhea if the patient is properly handled. It is important to remember that encouraging results can be obtained in such patients with almost any kind of glandular product (even with placebos) owing to their psychotherapeutic effect.

TABLE 5.—*Primary Dysmenorrhea: Results of Administration of Diethylstilbestrol*

Patient	First Menstrual Period		Treatment, Diethylstilbestrol	Second Menstrual Period		Third Menstrual Period	
	Endometrial Biopsy	Pain		Endometrial Biopsy	Pain	Endometrial Biopsy	Pain
M. S.	Secretory	Present	+	Proliferative	Absent	Secretory	Present
D. R.	Secretory	Present	+	Proliferative	Absent	Secretory	Present
T. J.	Secretory	Present	+	Proliferative	Absent	Secretory	Present
M. S.	Secretory	Present	+	Proliferative	Absent	Secretory	Present
E. H.	Secretory	Present	+	Proliferative	Absent*	Secretory	Present
S. R.	Secretory	Present	+	Proliferative	Absent	Secretory	Present
E. Y.	Secretory	Present	+	Proliferative	Absent	Not done	Present
S. E.	Secretory	Present	+	Proliferative	Absent	Not done	Present
A. B.	Secretory	Present	+	Proliferative	Absent	Not done	Present
A. M.	Secretory	Present	+	Proliferative	Absent	Not done	Present
V. M.	Secretory	Present	+	Proliferative	Absent	Not done	Present
R. S.	Secretory	Present	+	Proliferative	Absent†	Not done	Present
F. M.	Secretory	Present	+	Proliferative	Absent	Not done	Present
R. H.	Secretory	Present	+	Proliferative	Absent	Not done	Present
F. R.	Secretory	Present	+	Proliferative	Absent	Not done	Present
M. H.	Secretory	Present	+	Proliferative	Absent	Not done	Present
J. F.	Secretory	Present	+	Proliferative	Absent	Not done	Present
M. C.	Secretory	Present	+	Proliferative	Absent	Not done	Present

* Severe bleeding necessitated bed rest for two days.
† Severe uterine bleeding necessitated hospitalization for transfusions.
In 13 other patients endometrial biopsy disclosed secretory endometrium which was followed by painful menses.

CONCLUSIONS

1. Women with primary dysmenorrhea have no consistent anatomic lesions or endocrine deficiencies.

2. Ovulation and a nulliparous cervix are two essential factors in producing primary dysmenorrhea, and they result in uterine distention which stimulates contractions of large enough amplitude to produce cramping pain.

3. The suppression of ovulation by estrogens to produce painless menses is of experimental interest but of questionable value and possibly dangerous.

SIGNIFICANCE OF PHLEBOGRAPHY IN PHLEBOTHROMBOSIS

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Although visualization of the venous system is frequently referred to as venography, we believe that, since this is a hybrid word, being derived from both Latin and Greek, phlebography should be used because it has a true Greek origin: *φλέψ, phleps,* vein, and *γράφειν, graphein,* to write.

Few complications in medicine and surgery are as unpredictable, treacherous and dramatically tragic as the thromboembolic phenomena. Fatal pulmonary embolism in a patient apparently convalescing uneventfully and preparing to leave the hospital is a fearsome and pathetic catastrophe. Whereas the mortality rate in surgical patients has steadily decreased since the introduction of asepsis and continued improvement in surgical technic and anesthesia as well as the more recent development of the sulfonamides, little has actually been accomplished in the control of pulmonary embolism until relatively recently. Indeed there is some statistical evidence to support the belief that the thromboembolic incidence is increasing.[1] That the condition occurs with sufficient frequency to deserve the assiduous and intensive efforts of investigators has been clearly demonstrated by repeated observations. Thus Snell[2] at the Mayo Clinic and Dietrich[3] in Germany found that pulmonary embolism was considered the cause of death in approximately 8 per cent of all autopsies. In a statistical consideration of this subject Gibbon[4] was able to express the incidence of fatal pulmonary embolism as follows: Of every thousand patients admitted to the surgical wards, 1 will die of pulmonary embolism; of every thousand operated on, 2 will die from pulmonary embolism; and of every hundred postoperative deaths, eight will be due to pulmonary embolism. Other investigators[5] have found that of every 17 to 20 patients with clinical manifestations of thrombophlebitis 1 will die of pulmonary embolism and 1 in every 6 to 12 who had previous nonfatal embolism will die of a subsequent embolus. These figures demonstrate forcefully that the incidence and consequence of thromboembolic phenomena are of sufficient extent to deserve serious consideration.

Until recently, combative measures in pulmonary embolism have been singularly ineffective. The Trendelenburg operation, which consists of pulmonary embolectomy, has saved relatively few patients with massive pulmonary embolism and cannot be expected to improve the mortality appreciably. Accordingly it became necessary to attack the problem from another approach. This consists essentially in prophylaxis. Since an embolus has its origin in a thrombus, prophylaxis should begin with measures designed to prevent intravascular thrombosis. No attempt, however, will be made here to discuss in detail this phase of the subject, as it has been adequately reviewed in previous publications.[6] Suffice it to say that, whereas such measures will undoubtedly decrease the incidence of thrombosis, they do not completely prevent its occurrence. Even the use of anticoagulants such as heparin and dicumarol have not been found completely satisfactory. Heparin has the disadvantages of being costly, requiring continuous or repeated intravenous injections and maintaining a constant anticoagulant effect with difficulty. Moreover, cases of pulmonary embolism during heparinization have been observed.[7] Dicumarol, which is still in the experimental stage, also has distinct disadvantages. In view of the wide variations in susceptibility to the drug in different patients, the definite danger of hemorrhage associated with its use and the lack of conclusive evidence of its effectiveness for the present, dicumarol "cannot be regarded as a safe, efficacious and satisfactory prophylactic or therapeutic agent in intravascular thrombosis."[8] Whereas anticoagulants will prevent blood coagulation, their routine use prophylactically is not justified except possibly in the unusual cases in which there is a thrombosing tendency which can be determined by a history of previous thrombosis or a family history of repeated thromboses. Once a thrombus has formed, the use of anticoagulants will not protect against its detachment even though the blood coagulability is decreased. These realistic considerations permit comprehension of the rationale of prophylactic therapy of pulmonary embolism once intravascular thrombosis has occurred. Accordingly the direction of attack must be focused on the prevention of fragments of the thrombus from reaching the pulmonary vascular channels. Obviously the logical means of doing this is by blocking or ligating the venous channel central to the site of the thrombus.

That the value of proximal venous ligation in intravascular thrombosis has long been realized is shown by its interesting historical development. One of the earliest observers to realize the rationale of this procedure was Hunter,[9] who in 1793 successfully applied it clinically. However, Hunter apparently did not actually perform venous ligation but attempted to accomplish the same purpose by placing compression "upon the part of the vein just above the suppuration." Lee[10] in 1865 was possibly one the earliest actually to ligate a vein above the thrombotic process. Approximately two decades later Kraussold[11] recorded the successful ligation of the femoral vein in a patient with suppurative thrombophlebitis following thigh amputation, and Zaufal[12] reported the successful ligation of the internal jugular vein in the treatment of pyemia originating in the internal ear. Apparently Freund[13] was one of the earliest surgeons to apply

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the method in gynecology. Although the procedures were unsuccessful in preventing a fatal termination, he performed in 1898 ligation and excision of the thrombosed ovarian vein and broad ligament in 2 cases. Perhaps Trendelenburg [14] in 1902 was the first to perform the precedure successfully in a case of puerperal infection. At the first operation he ligated the hypogastric vein, but because the patient continued to have chills he performed a second operation and ligated the ovarian veins. Of interest in this connection is the fact that at this time Trendelenburg expressed the opinion that vena caval ligation should not be considered in these cases because with such extensive thrombosis the procedure would be futile. Nine years later Trendelenburg [15] had apparently changed his mind, as he reported probably the first successful case of vena caval ligation for intravascular thrombosis. Subsequently the procedure was performed by a number of surgeons, as demonstrated by the collected series of 48 cases reported by Krotoski [16] in 1937. More recently Collins and his associates [17] at Tulane University have emphasized its value in suppurative pelvic thrombophlebitis. Ample evidence of the value of proximal venous ligation in intravascular thrombosis has been recorded by numerous other recent reports, which have been reviewed in a previous publication.[18]

Whereas it is now generally agreed that proximal venous ligation is definitive therapy in the prevention of pulmonary embolism, its practical application has been difficult. This is due to the frequent absence of precise criteria in determining or in predicting the possible occurrence of embolism. For this reason, some [19] have advocated routine division of the femoral vein in all patients who have or are suspected of having thrombophlebitis of the deep veins of the lower leg. This attitude may be questioned, for certainly pulmonary embolism infrequently occurs in thrombophlebitis and, when found, as we have previously emphasized, is due to the dislodgment of a coagulation thrombus proximal to the thrombophlebitic segment or to the liquefaction of the clot in suppurative thrombophlebitis. The clot resulting from the inflammatory reaction of the veins in thrombophlebitis is firmly attached to the vein wall and does not become loosened to form an embolus. Unless measures are taken to prevent it, however, a red clot or coagulation thrombus can develop in the vein proximal to the fixed white thrombus where stasis is likely to occur. In such an instance detachment of the red thrombus is possible, but this development can and should be prevented as soon as the thrombophlebitic process is detected.

On the other hand in intravenous clotting unassociated with inflammation of the vein, that is, phlebothrombosis, the clot is of the coagulation variety and is loosely attached to the vein wall, permitting its being loosened easily with the development of embolism. Patients with thrombophlebitis have definite clinical manifestations such as fever, pain and swelling of the involved extremity, whereas in patients with phlebothrombosis the symptoms and signs are minimal. As previously emphasized,[18] they may have a sense of impending disaster, exhibit a pulse rate out of proportion to anything else and have tenderness over the involved vein. The frequency of the occurrence of venous thrombosis is clearly demonstrated by numerous recent clinical and experimental investigations. Thus Roessle [20] in careful autopsies of 324 consecutive cases found that thrombosis had occurred in the deep veins of the calf in 88 persons over 20 years of age. Of this number 38 also had thrombosis in the femoral vein, in 10 of whom death was due to massive pulmonary embolism. Neumann,[21] in a similar study of 165 unselected patients dying from a variety of causes found thrombosis in 100. In 45 per cent thrombosis was present in the veins of the thigh with evidence of extension from a more distal process. Of the cases with thrombosis, 12 per cent showed massive pulmonary embolism and an additional 34 per cent showed multiple nonfatal emboli. Somewhat similar observations have been made by Bauer,[22] Hunter and his collaborators,[23] Frykholm [24] and others.

These and other reports emphasize the high incidence of the thromboembolic phenomenon and its treacherous nature. The latter feature is illustrated by the fact that frequently the first indication clinically of thrombosis is pulmonary infarction and too often this is fatal. This is especially likely to occur in certain forms of thrombosis. In previous publications we [6] have distinguished between two major types of intravascular thrombosis; namely, thrombophlebitis and phlebothrombosis. In the former the clotting is believed to be the result of injury to the vascular endothelium from mechanical trauma, bacterial invasion or chemical injury, whereas in the latter it may be due to venous stasis and to alterations in the cellular and fluid constituents of the blood that increase the clotting tendency. The clinical significance of this distinction lies in the fact that in thrombophlebitis the clot is usually firmly adherent to the vein wall and is therefore less likely to become detached and to result in embolism. In phlebothrombosis, on the other hand, the thrombus is loosely attached to the vessel and is more likely to cause embolism. Of particular importance also is the more insidious development of phlebothrombosis, and the frequent lack of indicative clinical manifestations of thrombophlebitis, i. e. pain, fever and swelling, are much less pronounced in phlebothrombosis and not infrequently even absent. The patient does not appear so sick in phlebothrombosis as in thrombophlebitis, but restlessness and anxiety in the former are frequently present. For these reasons a precise method of diagnosis of intravascular thrombosis is desirable. Herein lies the importance of phlebography. Much credit is due dos Santos [25] and his son for developing this procedure and directing

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18. Ochsner, Alton, and DeBakey, M. E.: Therapeutic Considerations of Thrombophlebitis and Phlebothrombosis, New England J. Med. **225**: 207 (Aug. 7) 1941.
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20. Roessle, R.: Ueber die Bedeutung und die Entstehung der Wadenvenenthrombosen, Virchows Arch. f. path. Anat. **300**: 180, 1937.
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24. Frykholm, Ragnar: Pathogenesis and Mechanical Prophylaxis of Venous Thrombosis, Surg., Gynec. & Obst. **71**: 307 (Sept.) 1940.
25. dos Santos, J.: La phlebographie directe conception, technique, premiers résultats, J. internat. de chir. **3**: 625, 1938.

attention to its significance. Subsequently Bauer [22] elaborated the technic and emphasized further its value. Since then others [26] have presented further critical evaluation of the procedure and substantiated its value.

The technic of phlebography is so simple that it can be done easily by any one. Moreover, it is a relatively safe procedure. Although untoward effects of diodrast have been reported,[27] we believe that if used properly these can be prevented. The patient is placed on the x-ray table on his back with a 7 by 17 film under his leg and lower thigh. This should be placed so that the popliteal vein will be well visualized on the upper part of the film. A tourniquet is applied to the thigh just below the fossa ovalis and just tight enough to occlude the superficial circulation. This is done in order to shunt the contrast medium from the superficial veins into the deep veins. The leg and thigh are internally rotated in order to separate the shadows of the tibia and fibula and secure unobstructed visualization of the veins (fig. 1). Twenty cc. of 35 per cent diodrast solution is injected into any vein on the dorsum of the foot or ankle at the rate of 1 cc. per second. Twenty seconds after the injection is completed the film is exposed. If the standard supporting the x-ray tube is high enough to permit the tube to be 6 feet above the film, visualization of almost the entire lower extremity with one exposure will be feasible (fig. 2). In such an instance a 7 by 17 film is placed under the leg and knee, and a 14 by 17 film is placed above this under the thigh. The injection of the contrast medium is made in a similar manner, except that 25 cc. of diodrast solution is injected and the exposure is made approximately thirty seconds after completion of the injection. Occasionally the veins on the dorsum of the foot may be so small that placing a needle into one is impossible. In such instances the external saphenous, which is constantly present just behind the external malleolus, is easily found and cannulated.

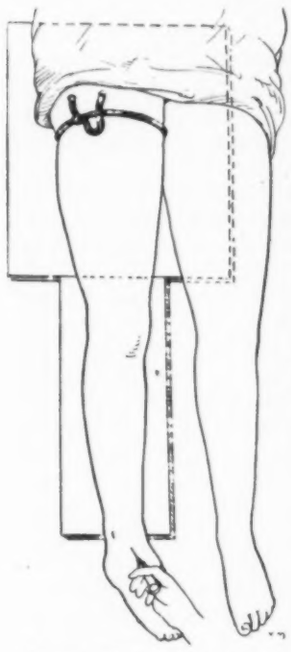

Fig. 1.—Diagrammatic drawing showing the position of the extremity during phlebography. The extremity is rotated medially to separate the shadows of the tibia and fibula. With the tourniquet placed high on the thigh tightly enough to compress the superficial veins, 25 cc. of 35 per cent diodrast solution is injected into a dorsal vein of the foot.

If the side of involvement is unknown, a single 14 by 17 film is placed behind both legs and lower thighs, and injections are made simultaneously into a dorsal vein on each foot. In this way phlebograms of both legs and popliteal areas can be obtained at the same time.

Normally both the deep and the superficial veins of the leg and thigh fill with the contrast substance and are clearly delineated on the film. Incomplete or irregular filling or absence of filling is an indication of thrombosis. If the deep veins are thrombosed, the superficial veins fill and are dilated. We have observed, as have dos Santos [28] and Starr, Frank and Fine,[29] that resistance to injection, indicative of increased venous pressure above that expected with a tourniquet at the thigh, is present in cases of thrombosis. If a defect in the venous system is visualized, indicating the presence of a thrombus, steps should be taken immediately to prevent its detachment, either by ligating the vein above the site of the thrombus or by removing the thrombus. The latter method is preferred in cases in which the thrombus is in the femoral and extends into the iliacs.

REPORT OF CASES

CASE 1.—Mrs. H. C., aged 44, white, seven months pregnant, went into labor with breech presentation. Craniotomy was necessary for delivery. The postpartum course was so uneventful that she was discharged on the sixth day. She remained in bed at home and on awakening on the morning of the eleventh day noted that her left leg was swollen considerably, ashen in color and painful to touch, especially in the calf. She returned to the hospital, where it was found that her temperature was 99 F. and pulse rate 90. There was considerable edema of the leg and thigh with tenderness in the calf and along the course of the femoral vein. Phlebothrombosis was suspected and confirmed by phlebography, which showed that the entire deep venous system was obliterated. Exploration of the femoral vein revealed a typical "red thrombus," which was aspirated from the vein both proximally and distally. Bleeding occurred from both ends of the vessel after aspiration of the clot. The vein was ligated between the entrance of the vena profunda and the internal saphenous.

The patient remained without further symptoms after the ligation.

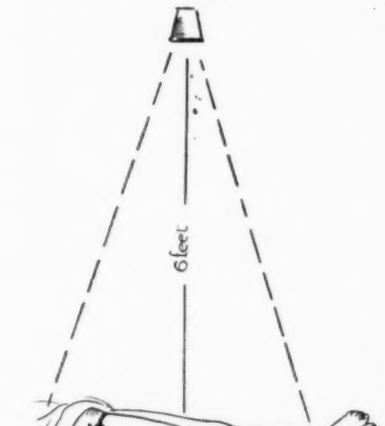

Fig. 2.—Diagram showing the method of visualization of the venous system of the entire lower extremity with one exposure. By employing a tube-film distance of 6 feet in which parallel rays will reach the film, it is possible, with two films placed in tandem, to visualize the venous system of the entire lower extremity.

Läwen,[30] Kulenkampff,[31] Lange,[32] Fründ [33] and others have advocated various types of thrombectomy in the treatment of these cases. If a defect in the superficial venous system, the deep system or both is visualized, immediate operation should be done in order either to ligate the involved vein above the thrombus or to remove the clot and ligate the vein, so that detachment of the clot with the development of embolism can be prevented. There is usually some edema and cyanosis of the extremity following ligation, which responds well to procaine hydrochloride sympathetic block and elevation. The

26. Dougherty, John, and Homans, John: Venography: A Clinical Study, Surg., Gynec. & Obst. **71**: 697 (Dec.) 1940. Lindblom, K.: Phlebographische Untersuchung des Unterschenkels bei Kontrastinjektion in eine subkutane Vene, Acta radiol. **22**: 288, 1941. Welch, C. E.; Faxon, H. H., and McGahey, C. E.: Application of Phlebography to Therapy of Thrombosis and Embolism, Surgery **12**: 163 (Aug.) 1942. Fine, Frank and Starr.[7]

27. Goldburgh, H. L., and Baer, Samuel: Death Following Intravenous Administration of Diodrast, J. A. M. A. **118**: 1051 (March 28) 1942. Homans, John: Thrombosis as Complication of Venography (Using Diodrast), ibid. **119**: 136 (May 9) 1942. Naterman, H. L., and Robins, S. A.: Cutaneous Test with Diodrast to Predict Allergic Systemic Reactions from Diodrast Given Intravenously, ibid. **119**: 491 (June 6) 1942.

28. dos Santos, R.: Phlébographie d'une veine cave inférieure suturée, J. d'urol. **39**: 586, 1935.

tenderness over the thrombosed veins remains for a week or ten days and then subsides. There is usually a slight rise in temperature for a few days postoperatively.

CASE 2.—Mrs. M. C., aged 59, white, admitted to the surgical service, complained of a recurrent left femoral hernia which had been repaired three years previously, only to recur three weeks prior to admission. With the exception of the hernia and moderate obesity, the physical examination and complete laboratory work-up were normal for a person of her age. A rather extensive hernia was repaired and the postoperative course was uneventful and afebrile until the seventh day. At this time an unaccountable fever occurred which persisted for two days. On the ninth postoperative day she complained of pain in the left heel. Tenderness was noted on pressure in the left calf, and pain was present in the calf on dorsiflexion of the foot. There was no swelling or discoloration of the extremity. Phlebothrombosis was suspected, and phlebography revealed the presence of a clot in the deep veins of the leg (fig. 3). Ligation of the femoral vein was done immediately distal to the internal

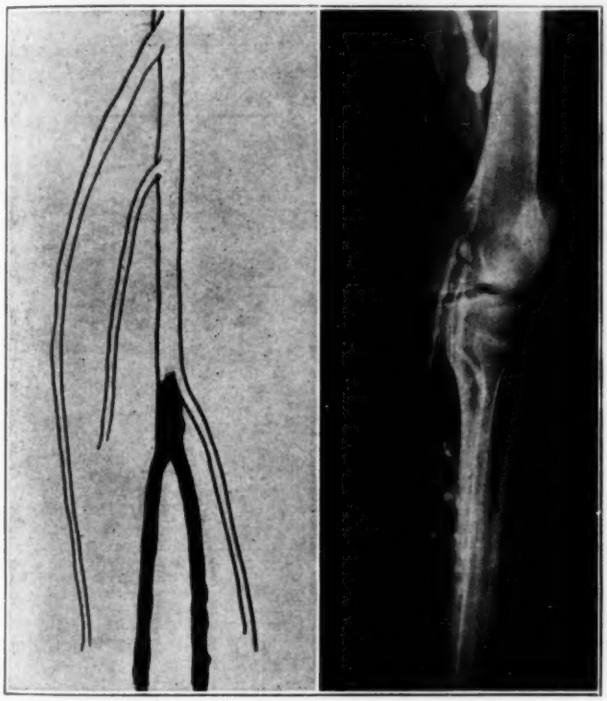

Fig. 3.—Phlebogram in case 2 showing normal filling of the dilated, superficial veins of the upper leg and the deep and superficial veins of the thigh, but an absence of filling of the deep veins of the leg, indicating the presence of a clot in this area.

saphenous. We believe, contrary to the opinion of Fine and his co-workers, who prefer to ligate just distal to the vena profunda, that generally all of the deep circulation should be occluded.

CASE 3.—A. G., a white man, aged 59, was admitted to the hospital following a crushing injury in which he sustained a simple fracture of the right femur and fibula. Physical examination and laboratory studies were otherwise normal. The fracture was reduced by traction with a Steinmann pin inserted through the upper tibia, and a spica cast was applied. Three days later he developed sudden severe chest pain, fever to 103 F. and a pulse rate of 100. Examination and a portable chest x-ray film gave evidence of a pneumonic process at the right base. He was treated unsuccessfully with sulfathiazole and specific type vii pneumococcus serum for eleven days. At this time he again had sudden severe chest pain with elevation of pulse and temperature and pronounced dyspnea. He also com-

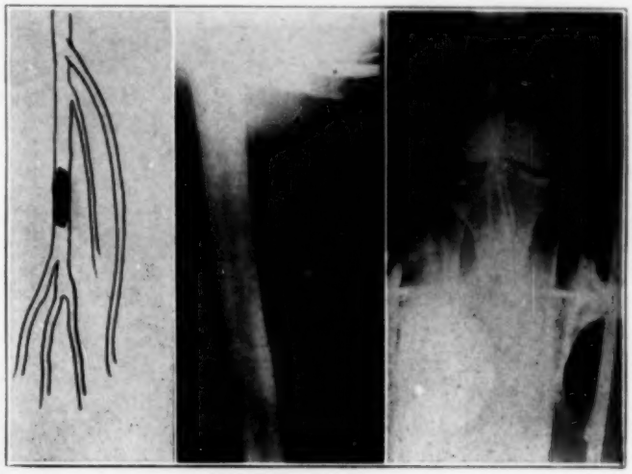

Fig. 4.—Phlebogram in case 3 showing filling of the deep and superficial veins of the leg, popliteal area and lower thigh with a defect in the deep veins of the midthigh.

plained for the first time of pain in the right thigh. Phlebothrombosis was suspected. The cast was removed and a phlebogram made (fig. 4). A defect was visualized in the femoral vein, and ligation was done. Since this time he has been afebrile and has had a normal pulse and no respiratory symptoms or signs.

It is obvious, then, that this patient had phlebothrombosis and two attacks of pulmonary infarction. This case illustrates that not all pulmonary infarctions are fatal. Even though almost three fourths of the patients with pulmonary embolism survive, the fact that in 30 per cent of patients the embolism is massive enough to be fatal emphasizes the potential gravity of every case of phlebothrombosis.

CASE 4.—Interestingly enough, this patient also had pulmonary infarction, which was treated originally as a pneumonia. O. D., a Negro woman aged 29, was admitted to the gynecology ser-

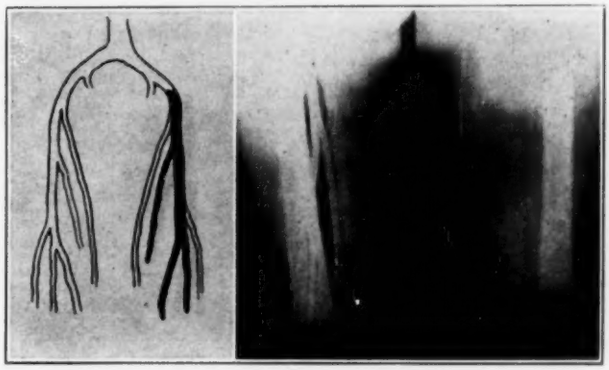

Fig. 5.—Bilateral phlebogram in case 4. On the right side there is normal filling of the superficial and deep veins, whereas on the left there is an absence of filling of the deep veins. Because of blockage of the deep veins, the superficial veins are abnormally prominent.

vice complaining of right lower quadrant pain. She was treated conservatively for pelvic inflammatory disease and discharged eleven days later with instructions to remain in bed at home. She returned four days later stating that two days after being home she had sudden severe sharp pain in the right chest and

29. Starr, Arnold; Frank, H. A., and Fine, Jacob: The Venographic Diagnosis of Thrombophlebitis of the Lower Extremities, J. A. M. A. **118**: 1192 (April 4) 1942.
30. Läwen, A.: Thrombectomy in Venous Thrombosis and Arteriospasm, Internat. Abstr. Surg. **65**: 348, 1937.
31. Kulenkampff, D.: Die Verhütung schwerer oder tödlicher Embolien durch Ausräumung der Vena iliaca, Zentralbl. f. Chir. **62**: 1258, 1938.
32. Lange, K.: Beitrag zur operativen Behandlung der blanden Venethrombose, Zentralbl. f. Chir. **65**: 2422, 1938.
33. Fründ, H.: Thrombektomie als Prophylaxe gegen Lungenembolie, Zentralbl. f. Chir. **64**: 1202, 1937.

difficulty in breathing. A physician was called who prescribed therapy without relief and advised hospitalization. The admission diagnosis was pneumonia because signs of consolidation were found at the right base and there was x-ray evidence of pneumonitis. In light of subsequent findings this is now interpreted as an infarction. She recovered completely except for fluoroscopic evidence of thickened pleura and impaired diaphragmatic function noted eight days later. She was discharged after nineteen days in the hospital. She returned five days later to the gynecology service stating that for the past few days she had pain in the left thigh. This is the first time any complaint of any difficulty in the lower extremities could be found. Examination revealed moderate edema of the left leg and thigh with tenderness over the femoral vein and in the calf. A diagnosis of phlebothrombosis was made because the patient was relatively afrebrile. Phlebograms were made which show normal filling of the right femoral, absence of the left femoral and presence of superficial left thigh veins (fig. 5). Because of the previous infarction, the femoral vein was explored and found to contain a typical "red thrombus."

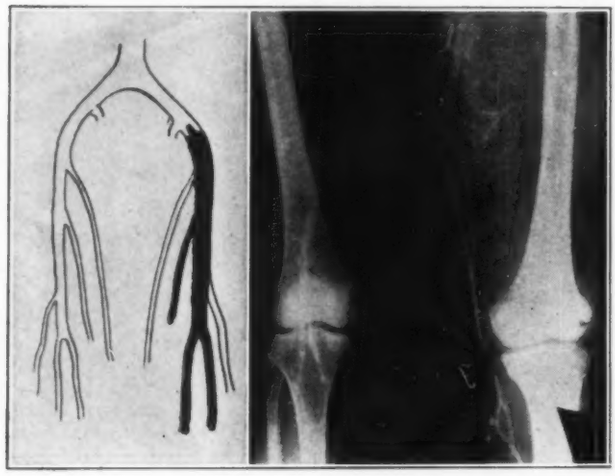

Fig. 6.—Bilateral phlebograms in case 5. On the right side there is normal filling of both the deep and superficial veins, whereas on the left there is an absence of filling of the deep veins and also dilatation of the superficial veins, indicating a thrombus in the deep venous system.

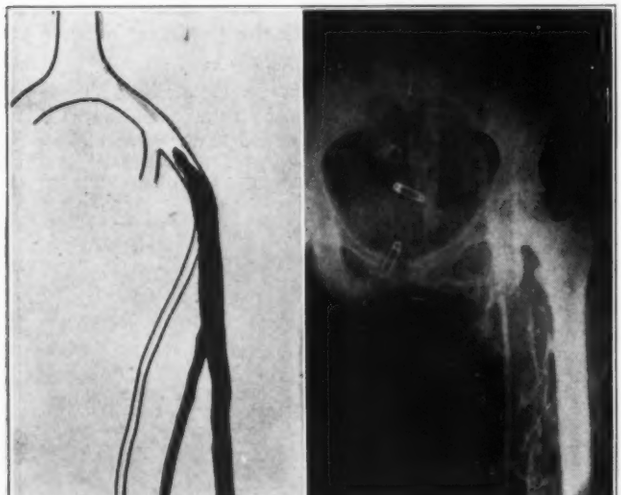

Fig. 7.—Phlebogram in case 6 showing well filled long saphenous vein and dilatation of other superficial veins, but absence of filling of the femoral, indicating the presence of a thrombus in the deep venous system.

This case illustrates how in many cases repeated nonfatal embolisms can occur. Fortunately, in spite of the delay in recognizing the true condition, the infarctions were relatively small and the involved vein was finally ligated before an embolism large enough to cause death broke loose.

Case 5.—Mrs. A. L., aged 22, white, was admitted to the obstetric service near term with preeclamptic toxemia. She delivered two weeks after admission and was then transferred to the medical service for study because of a pronounced anemia. While there she developed a typical thrombophlebitis of the right lower extremity for which procaine sympathetic lumbar block was done on several occasions. Six days later, because of progression of her symptoms, consisting of increasing pyrexia and swelling, phlebograms were done which showed obliteration of the right femoral vein but a normal left femoral vein (fig. 6). Because of considerable pelvic tenderness it was thought by the gynecologists that she had a pelvic thrombophlebitis, which was proved at operation. The inferior vena caval and the ovarian veins were ligated. The temperature returned to normal within ten days.

Case 6.—Mrs. L. H., aged 23, white, was admitted to the gynecologic service complaining of flooding. A diagnosis of cervical erosion, hyperplastic endometrium and relaxed perineum was made and a dilation and curettage, conization of the cervix and posterior colporrhaphy were done. Postoperatively on the eighth day she developed fever, which was thought to be due to parametritis. On the twelfth postoperative day she complained of pain in the left thigh. It was noted that there was mild edema of the thigh and leg and tenderness along the course of the femoral vein. Phlebographic studies showed a complete femoroiliac obliteration (fig. 7). Repeated lumbar sympathetic procaine blocks relieved the clinical manifestations of thrombophlebitis.

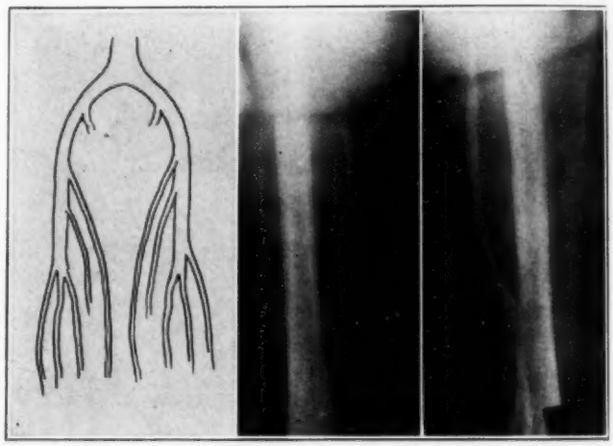

Fig. 8.—Bilateral phlebograms in case 7 showing normal filling of both superficial and deep veins. Although clinically intravenous clotting was suspected, the normal filling of the veins, as demonstrated by phlebography, ruled out the presence of an intravenous clot. Patient's symptoms were subsequently found to be due to a cul-de-sac abscess.

In cases of thrombophlebitis, ligation is unnecessary because here the clot is intimately attached to the vein wall and embolic phenomena rarely if ever occur.

Case 7.—Mrs. L. H., aged 43, white, on her second postoperative day following a hysterectomy developed fever to 104 F.; the pulse rate was 110. This persisted until the fifth day, when slight edema of the legs was noted. Pelvic or iliofemoral thrombophlebitis was suspected, and phlebograms were made. The deep veins were found to be normal (fig. 8). Subsequently an abscess was detected in the cul-de-sac and drained, resulting in relief of symptoms.

Thus it is demonstrated that often negative phlebograms are of considerable aid.

Case 8.—Mrs. M. McI., aged 55, white, developed left thrombophlebitis following an injury resulting in evisceration and laceration of the colon. Phlebography demonstrated obliteration of the deep veins and dilatation of many superficial veins (fig. 9).

Although phlebography demonstrated very clearly in this case the extent of the thrombophlebitic process, we believe that this procedure is generally not necessary in thrombophlebitis in contradistinction to phlebothrombosis, in which accurate localization of the clot is essential in order that adequate therapy may be instituted.

CASE 9.—S. G., a Negro woman aged 43, had an extensive carcinoma of the cervix. She had a definite internal saphenous thrombophlebitis and was suspected of having deep venous thrombosis. Phlebography, however, demonstrated a patent femoral vein (fig. 10).

In superficial thrombosis the diagnosis is usually obvious because the vein is readily palpable and often visible. There is inflammatory reaction and tenderness along its course. Whereas embolism seldom follows thrombophlebitis of the superficial veins, it can complicate phlebothrombosis of this system. Because

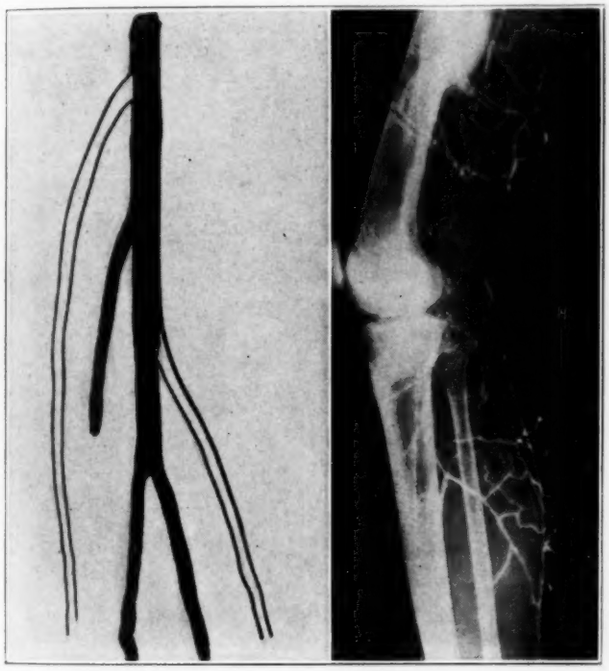

Fig. 9.—Phlebogram in case 8 showing complete absence of filling of the deep venous system, with filling and dilatation of the superficial veins. In this case the intravenous clot was the result of thrombophlebitis and not phlebothrombosis.

of the innocuousness of and the ease with which ligation of the superficial veins can be done, it is indicated in all spontaneous intravenous clotting of the superficial veins of the thigh.

CASE 10.—M. J., a Negro woman aged 45, had a vaginal hysterectomy. The postoperative course was stormy because of a pelvic peritonitis, and a thrombophlebitis in the right iliofemoral vein was suspected. Lumbar sympathetic nerve blocks were done and apparently the thrombophlebitis cleared up. The pelvic infection improved and she was discharged. She returned with swelling of the leg and tenderness of the calf on the right side. Bilateral phlebography showed normal veins on the left and occlusion of the deep veins of the right leg with apparently a long clot extending into the popliteal and femoral veins (fig. 11). Another phlebogram taken an hour later showed the same defect (fig. 12). Because the filling defect in the popliteal and femoral veins was incomplete, it was thought that the thrombus was lying loose in the vessel and therefore was even more likely to become detached than those in most cases of phlebothrombosis. Operation was considered even more urgent in this case than usual. At operation a long "red thrombus" was sucked from the vein and ligation was done at the site of election.

This patient had not suffered embolic disturbances, but one can readily see what might have happened if the vein had not been ligated.

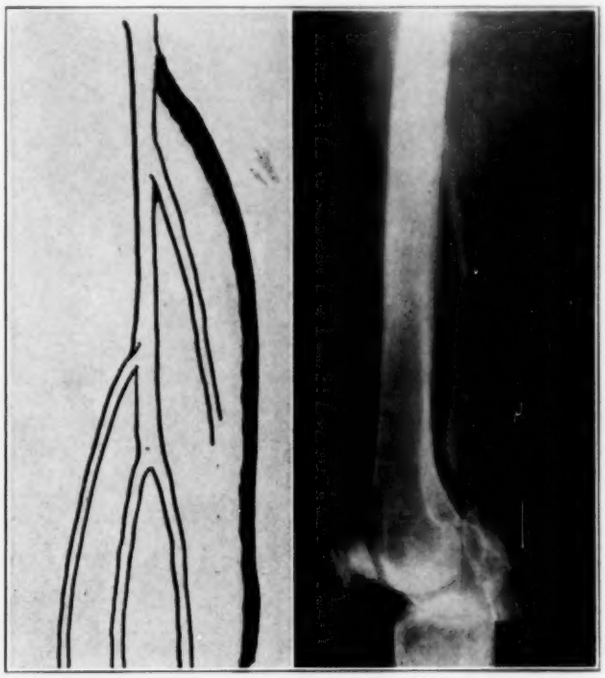

Fig. 10.—Phlebogram in case 9. Although a deep vein thrombosis was suspected, phlebography showed satisfactory filling of the deep veins but an absence of filling of the superficial veins, indicating a thrombus in the long saphenous.

CASE 11.—C. J. K., aged 60, was seen at his home on Jan. 15, 1942 with the story that approximately five weeks previously he had developed pneumonia. He was treated by the usual

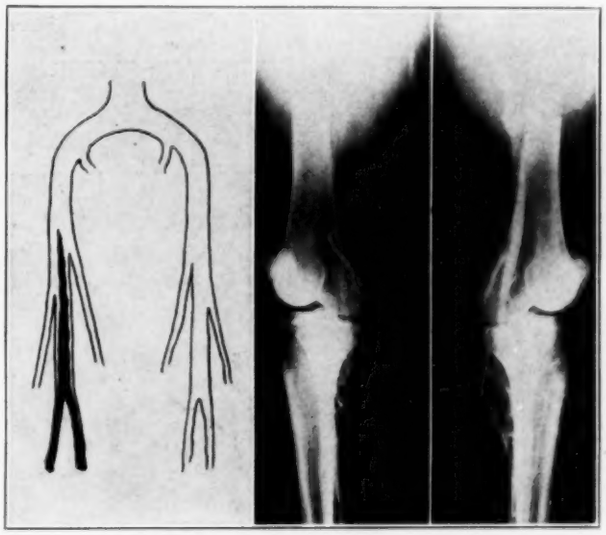

Fig. 11.—Bilateral phlebogram in case 10. On the left there is normal filling of both the deep and superficial veins, whereas on the right there is filling of the deep veins of the thigh and the superficial veins of the legs, but a defect of the deep veins of the leg and popliteal vein. The defect produced by the clot extending up into the saphenous can be well visualized.

methods, and recovery was quite satisfactory except that he continued to have a rapid pulse subsequently. He developed another attack of pneumonia on the opposite side. This was associated with hemoptysis. Not until two more attacks had

occurred was it evident that the pulmonary lesion was infarction. Heparin was administered and blood coagulation varied between fifteen minutes and one hour. During the period of heparinization, which lasted approximately ten days, two more emboli broke off. At the time he was extremely ill, semicon-

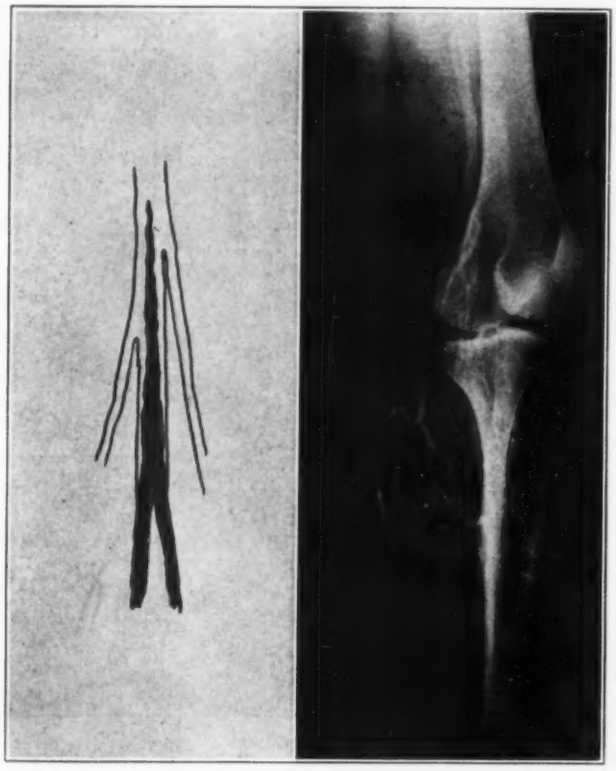

Fig. 12.—Phlebogram of the right leg in case 10, demonstrating normal filling of the superficial veins with dilatation of these veins of the calf, but absence of filling of the deep veins of the leg and popliteal area with the defect extending up into the femoral.

scious and cyanotic in spite of the fact that he was in an oxygen tent. Careful examination failed to reveal any evidence of thrombosis. The patient was removed to the hospital. Bilateral

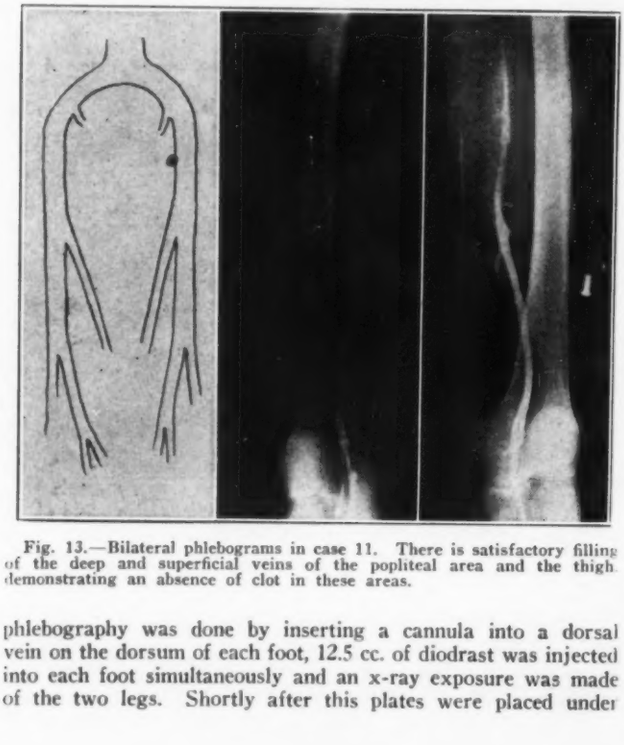

Fig. 13.—Bilateral phlebograms in case 11. There is satisfactory filling of the deep and superficial veins of the popliteal area and the thigh, demonstrating an absence of clot in these areas.

phlebography was done by inserting a cannula into a dorsal vein on the dorsum of each foot, 12.5 cc. of diodrast was injected into each foot simultaneously and an x-ray exposure was made of the two legs. Shortly after this plates were placed under the thigh and another 12.5 cc. of diodrast was injected into the foot, x-ray exposures of the thigh being made. Examination of the phlebograms showed filling of all the veins except the short saphenous on the left (figs. 13 and 14). The patient was taken to the operating room immediately and the upper end of the short saphenous vein was exposed. It was found to be collapsed and dissection down for a short distance disclosed that it was completely empty. Because of the poor condition of the patient it was decided not to extend the incision down until the thrombus was reached, but instead the vein was tied off. The extremities were wrapped with compression bandages from the toes to the groin, and active mobilization was started. Because of extensive pneumonitis he was given sulfonamides, which gradually brought down his temperature. His progress was uneventful from there on.

CONCLUSIONS

1. Phlebography is imperative in all cases of intravenous thrombosis in which the clot is not firmly attached to the vein wall; i. e., in phlebothrombosis.

2. The procedure is simple, safe and informative.

3. Whenever in phlebothrombosis a defect in the venous system is demonstrated, immediate operation

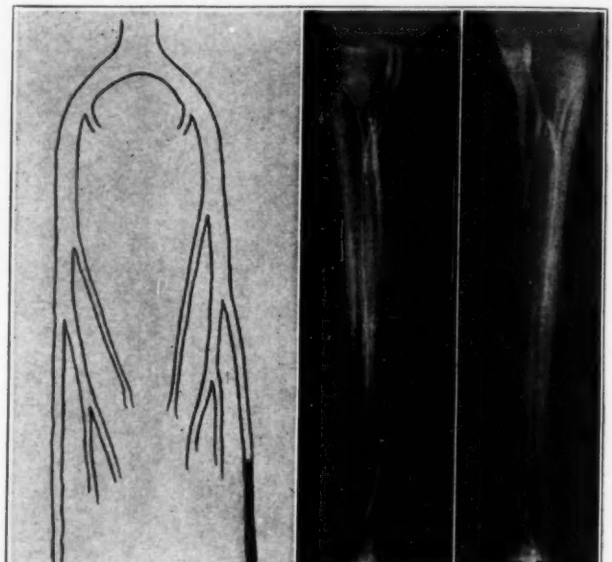

Fig. 14.—Bilateral phlebograms of the leg in case 11. On the right side there is normal filling of the superficial and deep veins. On the left, however, there is an absence of filling of the short saphenous in its lower portion, indicating a thrombus in this area, which was demonstrated at operation.

is imperative. This should consist of either ligation of the involved vein above the site of the thrombus or thrombectomy.

4. Only by the prompt recognition of intravenous thrombosis in phlebothrombosis and the institution of measures to prevent the detachment of the clot can the mortality rate from pulmonary embolism be decreased.

Iron Used as Medicine.—Iron has been used as a medicine since ancient times. Dioskorides gave iron rust to women who were flooding. Water or wine in which a glowing piece of iron had been quenched was long used as a treatment for diarrheas and dysenteries. As one would expect, iron was used often for exorcising disease. A curious idea was that of the Romans, who drove nails into the walls of the temple of Jupiter in order to ward off epidemics. Perhaps with somewhat similar ideas the Germans in the last war drove nails into a wooden bust of Bismarck.—Alvarez, Walter C., in Essays in Biology, Berkeley, University of California Press, 1943.

LESIONS OF THE ESOPHAGUS IN GENERALIZED PROGRESSIVE SCLERODERMA

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Generalized or diffuse scleroderma is a disease well studied from the clinical and the microscopic point of view and certainly is a well defined clinical entity. It is not restricted to the skin and to the organs adjacent to the skin but is a generalized systemic disease of the connective tissue.

In most cases the process starts on the hands and feet with a somewhat later and slower involvement of the face.

Three stages can be distinguished clinically: the edematous, the indurative and the atrophic stage. The initial edema does not pit on pressure. The skin appears tense and cannot be folded. The face assumes a mask-like expression; the regular folds smooth out. In the second phase the skin hardens and stiffens. This is particularly pronounced on the fingers, on the dorsa of the hands and in the region of the ankles. Hyperpigmented and depigmented spots appear in this stage. In the third stage the tips of the fingers become smaller and pointed, and the fingers are immobilized in a flexed position. The face, the nose, the ears, and the lips become gradually smaller and thinner. Ectropion develops in consequence of the atrophy of the lids. All mucous membranes of the mouth (tongue, hard and soft palate and gums) may be involved in the indurative and atrophic process. Ulcers, probably due to tension and deficient circulation, develop mainly on the finger tips, the elbows and the ankles. Fibrosis of the lungs without any subjective symptoms is a common sign of the disease.

With regard to the initial signs, two types of the disease can be distinguished: the type starting with Raynaud-like signs and symptoms and the arthritic type, the latter starting with joint pains and stiffness because of primary scleroderma in the articulations. There are condensation and absorption of bone material and atrophy at the joint surfaces with rarefaction of the substantia spongiosa. However, these two types are often intermingled. In the arthritic type one may see acroasphyxia of the fingers at any time, and in the Raynaud type severe arthritis may develop. Calcium deposits in soft tissues are often recorded, and true calcinosis in combination with scleroderma was described as a special syndrome by Thibierge and Weissenbach.

Pathologically, the main feature of the disease is a peculiar change of the collagenous tissue usually designated as homogenization. After the edematous stage, with the picture of swollen and loose fibers, has subsided, the collagenous fibrillae become thickened and less acidophilic than normal or even basophilic, which means that the collagen assumes acid properties. In this dense fibrous connective tissue the fibroblasts are shrunken and less numerous than normal. The vessels are intensely involved by the fibrotic process. The muscularis is completely replaced by connective tissue consisting of gross fibers. Also the elastica may disappear completely.

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LESIONS OF THE ESOPHAGUS IN GENERALIZED SCLERODERMA

Up to the present time little attention has been paid to the disturbance of esophageal function in diffuse scleroderma, although it seems to be present in many cases and may be an early sign.

Difficulty in swallowing has been reported in 16 cases of diffuse scleroderma. A postmortem examination of the esophagus has been made in 3 cases, while an esophagoscopic examination made during life has been reported in only 1. No microscopic examination made during life has been reported.

In 1932 Fessler and Pohl [1] reported esophagoscopic findings in a single case. The mucosa down to a stricture at a depth of 32 cm. was normal. The stricture appeared to be dense scar tissue narrowing the lumen so that a thin probe could not be passed. Although the mucosa in the stenosed part bled slightly, no gross ulceration or tumor was seen, and the firmness of the scar ruled out the possibility of spasm.

Ken Kuré and his associates [2] described the microscopic changes in the esophagus of a patient examined post mortem as "dystrophic."

In 1931 Rake [3] described gross and microscopic postmortem findings in a case of scleroderma in which the roentgenologist had described contraction in the lower end of the esophagus six years earlier. Grossly the esophagus was dilated to 4.5 to 5 cm. in width. The muscular coats were not visibly hypertrophied, but the mucosa was absent over the lower three fifths of the organ. The author did not state whether or not the patient had free acid in the stomach, so it is not known whether or not the loss of mucosa was the result of postmortem degeneration, peptic esophagitis or scleroderma. In the upper third erosions were present in an intact mucosa, but in the middle and lower thirds the mucosa was lacking. The submucosa was thickened and infiltrated with cells which were chiefly mononuclears with a few polymorphonuclear leukocytes; the changes were more extensive in the lower two thirds. Auerbach's intermuscular plexus was intact, and the ganglions and muscles appeared normal. A diagnosis of chronic ulcerative esophagitis was made.

Roentgenologic examinations of the esophagus have been made in 13 of the 16 reported cases. The descriptions have been somewhat sketchy. However, those given by Fessler and Pohl, Ken Kuré and Weissenbach and his co-workers [4] have been fairly detailed. All of these authors described diffuse dilatation of the esophagus with the passage of the bolus slowed, especially when the patient was in the horizontal position. Hoesli [5] presented a case in which the retardation of the bolus was noticed only at the cardia. Weissenbach and Fessler and Pohl [1] reported regional stenosis in the lower end of the esophagus. Fessler and Pohl also reviewed the

1. Fessler, A., and Pohl, R.: Stenotic Process of the Esophagus in Scleroderma, Dermat. Ztschr. **63**: 164-169, 1932.
2. Kuré, Ken; Yamagata, K.; Tsukada, S., and Hiyoshi, J.: Passagestörung des Oesophagus bei Sklerodermie und Dystrophia musculorum progressiva, Klin. Wchnschr. **15**: 516, 1936.
3. Rake, Geoffrey: On the Pathology and Pathogenesis of Scleroderma, Bull. Johns Hopkins Hosp. **48**: 212, 1931.
4. Weissenbach, Henry, and others: Progressive Scleroderma. Syndrome of Thibierge-Weissenbach. Ulcer of the Leg and Calcification of Soft Tissues. Esophageal Troubles, Bull. Soc. franç. de dermat. et syph. **44**: 2018-2037, 1937. Weissenbach, Stewart, and Hoesli, Henry: Functional Disturbances of the Esophagus and Esophageal Lesions in Scleroderma, ibid. **44**: 1060-1063, 1937.
5. Hoesli, Henry: Functional Disturbances and Lesions of the Esophagus in Scleroderma, Thesis, Paris, Jouve & Cie, 1937.

literature and found that the lesions in the esophagus had been termed cardiospasm (Nomland), esophagitis (Schwarz), diverticulum (Erhmann) and atony (Schmidt).

All of the 5 cases which form the basis of this report were clinically and histologically typical cases of diffuse

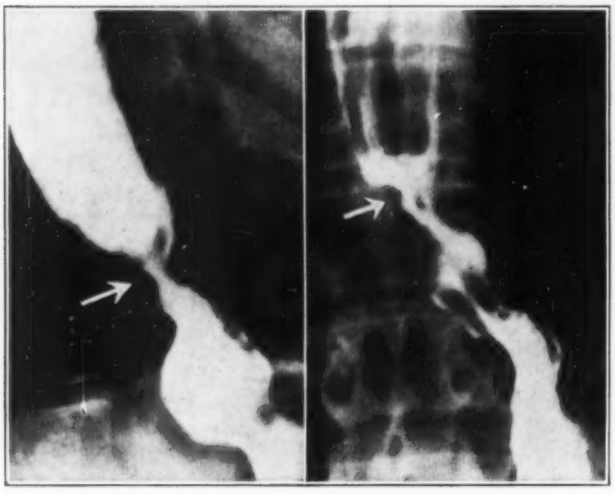

Fig. 1 (case 1).—On the left, barium sulfate fills the lower end of the esophagus, showing the stenosis (arrow) at the upper border of the phrenic ampulla. On the right, air is seen in the esophagus after most of the barium sulfate has passed through.

scleroderma.[6] The patients were 3 men and 2 women. They presented clinical evidence of a disturbance of the swallowing mechanism, varying apparently only in the stage of the esophageal lesion. There was roentgenologic evidence of disturbed function of the esophagus in all 5 with a varying degree of stenosis in 3. Four of the patients were examined on one or more occasions by means of the esophagoscope, and biopsy was performed in 2 cases.

CASE HISTORIES AND SYMPTOMATOLOGY

Considerable variation in the severity and the time of onset of esophageal symptoms seems to be characteristic.

Only 1 of the 5 patients volunteered any complaints referable to swallowing. In the other 4 the symptoms were clearly brought out on questioning, but the comparative severity of the pain and discomfort from the cutaneous lesions caused the difficulty in swallowing to be overlooked.

In the first patient (S. S.), an unemployed man aged 40, the difficulty in swallowing preceded the complaints referable to the skin by one and a half years. The obstruction was apparently steadily progressive for seven years. Dilation had been done five years previously and repeated at irregular intervals. He had not complained of epigastric pain at any time. When first seen he was receiving feedings through a gastrostomy opening, with a string in the esophagus for retrograde dilation. At admission he displayed fully developed, easily recognizable generalized scleroderma with the characteristically stiff and atrophic appearance of the face and the hands. He gave a typical history of initial Raynaud-like signs and symptoms occurring five and a half years ago.

The second patient (J. F.), a man 48 years old, had suffered from generalized scleroderma for three years. He was under the observation of the dermatology clinic of the University of Chicago for two and a half years. During this period he had an "arthritic" syndrome with typical sclerodermatic bone changes, Raynaud-like signs and symptoms, and severe ulceration on the finger tips, the elbows and the ankles. Thoracic sympathectomy was performed, but the operation had no beneficial effect whatever. His cutaneous disorder was clinically and histologically typical for scleroderma. On being questioned he admitted that he had had difficulty in swallowing. Solid food in particular seemed to stick and cause a fulness in the lower sternal region. The lower part of the esophagus was already stenosed to a diameter of about 6 mm.

The third patient (N. S.), a milkman aged 46, had noted numbness of fingers and hands to cold for about eighteen months. On admission he did not have typical scleroderma, but the shape and the pigmentary anomalies of the fingers and some spotted shiny areas on the upper part of the chest aroused suspicion. Neither solid edema nor atrophy was seen. However, in the course of one month's hospitalization there was progressive stiffening of the fingers, the dorsa of the hands and the chest. At a few spots definite signs of atrophy were seen. Microscopic examination of the skin revealed characteristic histologic changes. The patient also gave a history of pain beneath the sternum and in the epigastrium beginning eighteen months earlier. Pain came on about an hour after taking food, especially after consuming beer, "soda pop" and "hot dogs." It gradually became more frequent, lasted longer and was worse on lying down, also on vomiting and bowel movements. A preparation containing chiefly magnesium carbonate and sodium bicarbonate or one designated as citrocarbonate gave relief. The difficulty with cold hands was noticed about six months after the digestive complaints. Although the burning pain was always located behind the sternum from the epigastrium to the neck, it had been interpreted as due to gastric ulcer, until a review of the history and x-ray examination of the esophagus as well as an esophagoscopy were made. At this time an early degree of stenosis at the lower end of the esophagus was present.

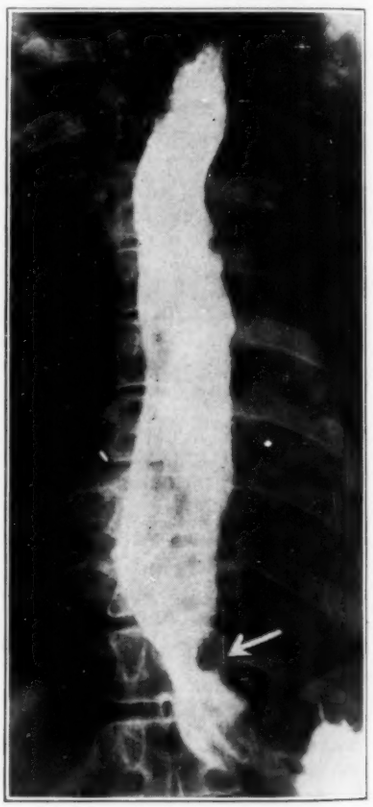

Fig. 2 (case 2).—Patient in horizontal position. The esophagus remains dilated throughout. A moderate degree of stenosis (arrow) was present at the upper border of the ampulla.

The 2 women presented a less advanced symptom complex referable to the esophagus. The first of these (M. G., aged 54) had had scleroderma for fifteen years and had been observed in the dermatology outpatient department for thirteen years; she had experienced difficulty in swallowing for over two years. Water was the worst offender and had to be swallowed slowly. A spasm of coughing frequently followed, and there was a sensation of fulness for a few moments behind the sternum, more noticeable and prolonged on lying down. The patient had found that she had great difficulty in swallowing water while lying down.

The second (F. N., aged 54), with scleroderma for six and a half years, which on admission extended over the whole body and face, gave a history of dysphagia on careful question-

6. The term acrosclerosis has not been used in this paper although all of our 5 cases fit the description of acrosclerosis given by J. Sellei (Die Akrosklerosis [Sklerodaktylie] und deren Symptomenkomplex nebst neueren Untersuchungen bei Sklerodermie, Arch. f. Dermat. u. Syph. **163**: 343-365, 1931) and that by P. A. O'Leary and M. Waisman (Acrosclerosis, Arch. Dermat. & Syph. **47**: 382-397 (March) 1943). We felt that what has been designated as acrosclerosis is identical with what always has been called diffuse or generalized scleroderma with sclerodactylia.

ing. For over two years she had noticed "heartburn"; a dull pain behind the sternum extending up to the neck an hour or so after eating occasionally was present in daytime but was more annoying at night. On drinking a glass of water she had to stop and wait a few moments for it to go down. A sensation of a load on her chest followed the drinking of a few mouthfuls, which she compared to the weight of "holding a baby in her

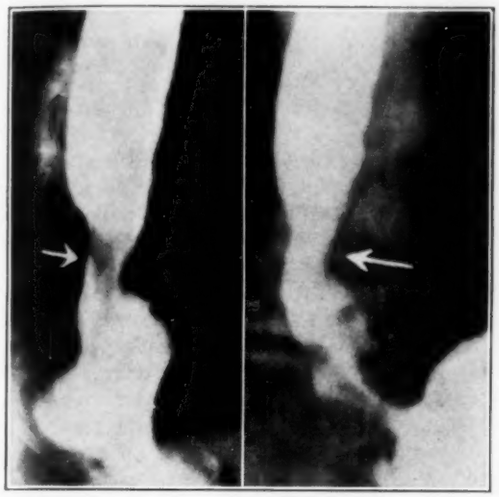

Fig. 3 (case 3).—Two views of barium sulfate in the lower end of the esophagus showing moderate stenosis (arrows) at the upper border of the ampulla.

arms" and which required a few moments to pass off. On testing her ability to drink a glass of water while in the reclining position she had much difficulty in getting down more than a few sips. She had noticed that lying on her left side would bring on the burning pain beneath the sternum.[7]

RESULTS OF FLUOROSCOPY

On fluoroscopy each of the 3 men was found to have a localized narrowing of the esophagus about 4 or 5 cm. above the level of the diaphragm (figs 1, 2 and 3). The narrowing was abrupt, measuring 2 or 3 cm. in length and varying in width. Some variation in width occurred with distention of the esophagus and with pulsation of the heart.

In all 5 patients there were pronounced changes in the muscular movements.[8] With the patient standing, barium sulfate passed from the pharynx to the stomach with some delay at the site of stricture but not at the cardia. When the patient was placed in the horizontal position the barium sulfate entered the esophagus and there remained. As each successive bolus was taken, the esophagus distended to receive it, reaching a width of approximately 4 to 5 cm. The primary peristaltic wave which normally arises in the pharynx and travels the length of the esophagus with each act of deglutition traveled only down to about the level of the suprasternal notch. In the 3 men and 1 woman the waves ceased entirely, but in the second woman (M. G.) it continued on down the esophagus as a wave insufficient in depth to propel the bolus along. In its progression this shallow wave differed from the normal wave in that the esophagus behind the advancing peristaltic constriction did not remain contracted but distended immediately. The shallowness of the wave and the immediate distention of the esophagus behind the advancing wave allowed barium sulfate in the esophagus ahead of the wave to regurgitate through the peristaltic constriction into the esophagus above as the peristaltic wave progressed toward the stomach.

The failure of the esophagus below the level of the suprasternal notch to contract efficiently undoubtedly explains the retention of barium sulfate in the esophagus as long as the patient remained in a horizontal position. Air which was also taken with the act of deglutition remained in the esophagus. If at this stage of the examination the patient was raised to a sitting or a standing position, the bulk of the barium sulfate passed into the stomach, but the esophagus did not collapse completely, the walls being separated by air within the lumen (fig. 1). It seemed obvious that the emptying of the esophagus was caused by gravity rather than by contraction of the walls and that in the case of the strictures the rapidity of the emptying was slowed only because of the resistance offered by the strictures.

Fig. 4 (case 5).—This view was taken during the Valsalva maneuver. Barium sulfate is seen passing from the ampulla through the cardiac sphincter. An apparent narrowing is seen at the upper border of the ampulla, but no stenosis was demonstrated.

While a woman (F. N.) was in the horizontal position, a small amount of barium sulfate was seen passing into the stomach during each expiration, but during inspiration the cardiac sphincter appeared firmly closed. During the Valsalva experiment in this patient, instead of the cardiac sphincter pinching off the esophagus and the phrenic ampulla ballooning out as in the normal person, the cardiac sphincter opened, permitting passage of barium sulfate as a result of the increased intrathoracic pressure (fig. 4). The narrowing seen at the upper level of the ampulla in this illustration was not constant and therefore was not interpreted as an early degree of stenosis.

If these patients were allowed to remain in the horizontal position after the esophagus filled and additional

7. A sixth patient with generalized scleroderma (a patient of Drs. Oppenheim and Cohen, Chicago) did not volunteer complaints referable to the esophagus. He had difficulty in swallowing in that fluids sometimes escaped up into the nasopharynx and the nose, apparently because of stiffness of the soft palate. Fluoroscopic and x-ray examination revealed complete absence of primary, secondary and nearly all tertiary peristaltic waves of the esophagus. Esophagoscopy showed no exudate or ulceration of the esophageal lining. This apparently represents an early stage of the disease affecting the esophagus.

8. Physiologists describe three types of muscular activity in the esophagus, namely the primary, secondary and tertiary waves. The primary wave is initiated by the act of deglutition and begins in the pharynx. As it progresses down the esophagus a wave of inhibition precedes the wave of contraction, so that the esophagus distends as the bolus is forced along. As the wave of contraction passes, the esophagus behind remains contracted. If the patient takes a deep breath, holds it and bears down "as if to move his bowels" after swallowing a bolus of a barium sulfate mixture, the closure of the cardia, probably produced by the pinchcock action of the diaphragm, offers resistance to the passage of the bolus. The 3 or 4 centimeters of the esophagus above the diaphragm become considerably distended. The primary peristaltic wave progresses down to the distended portion and there ceases. If the patient continues to hold his breath, barium sulfate will regurgitate up the esophagus through a narrowing when the esophagus above relaxes. This narrowing is seen only during the phase of regurgitation and not during the forward movement of the bolus.

Secondary waves are similar to primary waves except that they originate in the middle of the esophagus, usually at the level of the aortic arch.

Tertiary contractions are not clearly understood and are sometimes called "curling." They appear as irregular contractions of the lower half of the esophagus and last for not more than a second or two. At the height of the contraction the esophagus has a beaded appearance.

barium sulfate was given, barium sulfate entered the stomach. In all 5 it appeared that the barium sulfate was forced into the stomach by pressures set up by the abbreviated primary peristaltic wave and transmitted through the column of barium sulfate. The amount of barium sulfate that entered the stomach with each act of deglutition seemed to be equivalent to the amount taken with each swallow. There was no increase in distention of the esophagus or in regurgitation of the esophageal contents into the pharynx during this stage of the examination. The cricopharyngeus muscle was not incontinent.

The length of time that the upper part of the esophagus remained in contraction after the passage of the primary peristaltic wave was brief, perhaps not more than one or two seconds. If the patient was in a horizontal or a Trendelenburg position, barium sulfate from the lower part of the esophagus flowed into and distended the upper portion of the esophagus as it relaxed (fig. 2). In the normal person this phenomenon will not occur unless one act of deglutition is immediately followed by a second act. In all 5 cases of scleroderma the relaxation of the upper portion of the esophagus occurred in the absence of the second act of deglutition. Occasional small secondary peristaltic waves were observed in only one of the patients (F. N.). These quickly disappeared and were ineffective. Shallow tertiary waves were observed in only one patient, in whom stricture was not present.

Fig. 5 (case 2).—Section of a biopsy specimen from the esophagus; cellular infiltrate extends from the densely infiltrated mucosal layer down into the muscularis mucosae (*M. M.*). Reduced from a photomicrograph with a magnification of 225 diameters.

RESULTS OF ESOPHAGOSCOPY

Esophagoscopies were done on 4 of the 5 patients, including those with evidence of stenosis. Three separate examinations were made in the patient with the greatest degree of stenosis, once for diagnosis, once for removal of a foreign body and once for secondary examination preliminary to anastomosis of the stomach to the esophagus above the stricture.

Two examinations were made with removal of specimens for biopsy in the second case, one esophagoscopy and biopsy in the third, and one esophagoscopy in the fourth.

In 3 of the 5 cases difficulty was experienced in introducing the esophagoscope under local anesthesia. It appeared to be due in part to the patient's inability to open the mouth more than about one-half the normal width, inability to extend the tongue beyond the mucous membrane margin of the lower lip and tightness of the skin over the jaws and neck. In addition none of the patients seemed able to produce relaxation of the cricopharyngeus sphincter by swallowing. Under general anesthesia, however, the sphincter relaxed easily and the walls in that region appeared grossly normal. Some form of general anesthesia appears definitely indicated for esophagoscopy in cases of this type.

In all cases the wall of the esophagus from the beginning of the middle third downward was diffusely reddened and apparently thickened, with lessened tendency to form normal folds. In the lower third a diffuse layer of white exudate was present, which could be easily separated off, leaving a granulating base. In the patient with the most advanced changes (S. S.), at a distance of 40 cm. from the upper teeth a smooth scar tissue constriction was present which did not admit the esophagoscope. There was superficial ulceration in and above the area of the stricture which became apparent when the layer of exudate was removed. A string was present in the esophagus for retrograde dilation, but the lumen of the stricture was too small to permit a view below it.

In the other 2 men a lesser degree of fibrous tissue constriction was present in the lower part of the lower third, about 4 or 5 cm. from the stomach. The mucosa below the stenosed area was inspected in each of these patients and showed no exudate or evidence of ulceration. The color in that region, however, was not the pale color of a normal esophagus but was darker, approximating that of gastric mucosa. In the constricted area and upward for several centimeters a diffuse white membrane could be separated off, leaving a superficially ulcerated base.

The ulcerated area varied somewhat in extent in the 4 cases examined. A portion of this membrane was first removed for examination in the second case, but when it was found to contain no tissue a second esophagoscopy with biopsy was done. One biopsy specimen was taken in the third case.

One woman (F. N.) was examined esophagoscopically. Her esophagus also showed an inflammatory reaction beginning in the lower part of the upper third and extending downward. In the lower third a thin white diffuse membrane appeared, becoming progressively thicker down to about 4 or 5 cm. from the lower end, where the inflammatory reaction disappeared and the lining appeared normal although darker in color as in the other cases. The membrane peeled off easily, leaving a bright red granulating base. No definite constriction was observed.

MICROSCOPIC EXAMINATION

The specimen for the first biopsy (J. F.) proved to be a fibrinous membrane without any mucosa. This membrane was thick, containing much fibrin in which many polymorphonuclear leukocytes were trapped as well as a considerable number of eosinophils. The second specimen came from the same region, just above the stenosis. It consisted of the surface layers down through the muscularis mucosae but did not include enough of the connective tissue of the submucosa for examination. The epithelium was entirely absent. The mucosa was definitely thickened, with many newly formed capillaries containing large hyperplastic endothelial cells, and was infiltrated with polymorphonuclears, eosinophils and other inflammatory cells. The infiltrate invaded the muscularis mucosae (fig. 4).

The third biopsy (N. S.) was done on tissue from just above the stenosed area in the lower third of the esophagus. The section included submucosal connective tissue and blood vessels, muscularis mucosae and granulation tissue lining the esophagus. The epithelium was completely absent. The granulation tissue formed a layer about twice as thick as the normal mucosa (fig. 5). It contained many capillaries with hyperplastic walls, but these were less numerous and farther apart than in the former case.

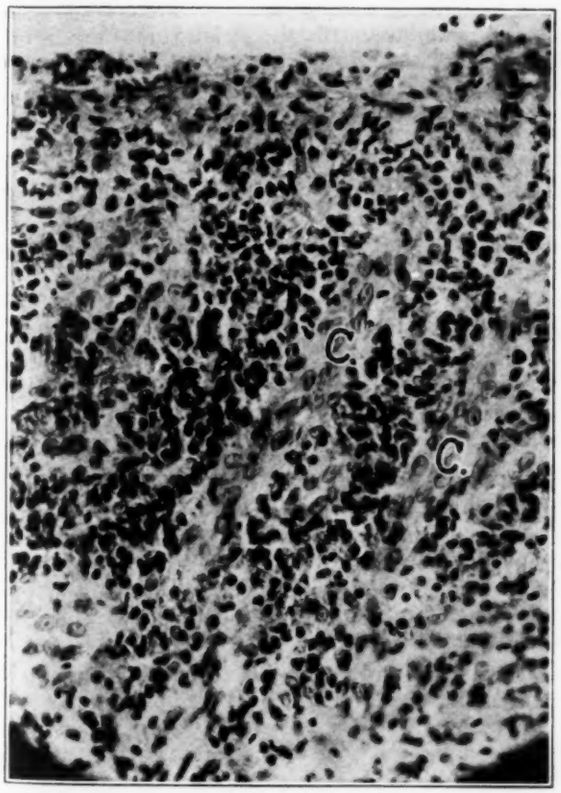

Fig. 6 (case 3).—Section of a biopsy specimen from the esophagus. Note the surface layer of granulation tissue with hyperplastic capillary walls (*C. C.*) and absence of epithelium. Reduced from a photomicrograph with a magnification of 450 diameters.

Plasma cells were especially numerous, but there were also numbers of eosinophils and neutrophils.

The top layer of granulation tissue was a clean surface in the section. The muscularis mucosae had a few inflammatory cells, but such cells were more numerous around blood vessels of the submucosa.

In the fragment of connective tissue excised the connective tissue was dense with sparse cells of the old fibrocytic type, rather small and shrunken (fig. 6). This abnormal connective tissue was less eosinophilic than other dense connective tissue such as tendon. The walls of a group of small blood vessels deep in the submucosa had an increase of connective tissue. The inflammation as a whole in this section showed an older, more organized ulceration than that seen in the former case.

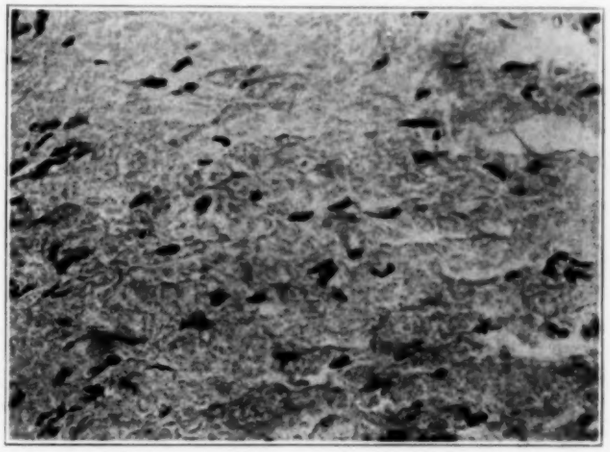

Fig. 7 (case 3).—Section of submucosal connective tissue. The connective tissue is dense with sparse cells of the old fibrocytic type, rather small and shrunken. Reduced from a photomicrograph with a magnification of 650 diameters.

No epithelium was shown in either of the sections. The thickening of the mucosa in both specimens was more pronounced than in common types of inflammation and had a more stenosing character.

COMMENT

The impression gained from these 5 cases is that esophageal disturbance is a characteristic manifestation of generalized scleroderma and that it is likely to appear early in the course of the disease. In the early stages, however, the symptoms are likely to be attributed to a gastric disturbance or may be of such a mild nature as to receive little attention or to be subordinated to the more severe symptoms from the skin and joints until actual obstruction to swallowing is present.

The early esophageal symptoms—inability to swallow more than a few mouthfuls of fluid rapidly, difficulty in swallowing while lying down and the sensation of fulness behind the sternum or of a weight on the chest for a few moments after swallowing—are explained by the fluoroscopic observation that normal peristalsis is absent in the lower two thirds of the esophagus and that the contents accumulate in this relaxed and dilated portion. Propulsion of the bolus occurs mainly by gravity or by the transmitted effect of peristalsis in the upper end on repeated swallowing and to a lesser extent to the expiratory phase of respiration, when intrathoracic pressure is higher.

The burning sensation or pain in the chest from the epigastrium to the neck occurring an hour or so after taking food, worse on lying down, during the night and on lying on the left side, suggests the probability of regurgitation of gastric contents into the esophagus with resulting irritation and inflammation. This view is favored by the fluoroscopic evidence in 1 case (F. N.) that the cardiac sphincter, as well as the

esophageal musculature above, was affected by some degree of weakness.

For the explanation of the diffuse chronic esophagitis extending above the level of the aortic arch, which was a constant finding on esophagoscopy, two possibilities must be considered. An inflammatory change in the mucosa comparable to that seen in the skin might occur on the basis of scleroderma directly. Or the chronic esophageal inflammation may indicate a peptic esophagitis secondary to regurgitation and retention of gastric contents. The absence of a similar inflammatory reaction in the mouth, the pharynx and the upper limit of the esophagus although the tongue and the palate are affected by the disease, and the limitation of the mucosal changes to that part of the esophagus in which peristalsis is absent and mild dilatation is present would seem to favor the explanation of the diffuse chronic inflammation on the basis of retention and a peptic esophagitis. The primary disturbance of esophageal function leading to retention is, however, due to the sclerodermatic process.

The ulceration in the lower third of the esophagus down to the phrenic ampulla and the stenosis at the upper limit of the ampulla require explanation. Fluoroscopy indicated that the narrowing of the esophagus above the phrenic ampulla is constant, whereas the normal constriction in the phrenic ampulla moves along and is most prominent during the phase of regurgitation with the patient in deep inspiration. The narrowing present in scleroderma is seen during expiration as well as during inspiration.

With contraction of the esophagus the folds at the center of an organic constriction are usually obliterated or bundled together, whereas in the normal esophagus a distortion of the folds at the upper margin of the phrenic ampulla is not seen. Each of the strictures seen could be differentiated from cardiospasm since it lay well above the diaphragm. In cardiospasm the narrowing occurs in the interdiaphragmatic portion of the esophagus.

Fibrous tissue stenosis was observed by esophagoscopy in 3 cases, and the location of the narrowing was not at the junction of a herniated stomach and esophagus but at a higher level, as noted by x-ray examination. In another case the location at a higher level was confirmed at the operation for anastomosis of the stomach to the esophagus above the stenosis.

The unusual microscopic features of the granulation tissue layer, the pronounced thickening, the hyperplastic type of capillaries and the great number of eosinophils and plasma cells suggest chronicity but could scarcely be interpreted as indicating a specific etiologic factor.

The inflammatory process extends into the muscularis mucosae and is noted around some vessels in the submucosa. The connective tissue layer in the submucosa, however, presents features which are characteristic of sclerodermatic changes in the skin. Unfortunately the biopsy must be restricted to superficial layers; the deeper muscular layers with connective tissue and nerve plexus, which might be expected to show early changes, cannot be included.

A distinctive feature of the ulceration in these cases was its limitation to that portion of the lower third of the esophagus lying above the phrenic ampulla. The ulceration seemed limited to a few centimeters in upward extent, but the esophagitis extended up into the upper third. No ulceration was seen below the stenosed area.

The explanation for the limitation of the ulceration and stenosis to the region above the ampulla as shown in illustrations remains obscure.

Benign ulcerations observed at autopsy, due to a terminal peptic esophagitis, have usually been reported in the lower end, not confined above the phrenic ampulla.

Benign discrete ulcers have been noted as having a predilection for the lower third of the esophagus [9] but not as occurring characteristically above the phrenic ampulla. No anatomic basis has as yet been demonstrated to explain the special behavior of this portion of the lower end of the esophagus.

While the superficial inflammatory changes and the loss of epithelium may be attributed to a peptic esophagitis, the primary disturbance of function of the esophagus is due to the sclerodermatic process, which in itself predisposes to ulceration. In this process the primary change must be sought in the "homogenization" of collagenous fibers, involving the connective tissue of vessels with a resulting tendency toward decrease of circulation and "trophic ulcers."

The tendency toward stricture in these cases appears to be explained as a direct result of the chronic ulceration. The limitation of the stricture to the area of greatest ulceration just above the ampulla and the tendency of chronic ulceration in the esophagus at any level to produce stenosis support this view.

SUMMARY

On the basis of the findings in 5 consecutive cases it appears that a disturbance of esophageal function is characteristic of generalized scleroderma. The esophageal disturbances are characterized by:

1. Loss of peristalsis in the lower two thirds, with relaxation and mild dilatation of the lower two thirds down to the phrenic ampulla, and probably some atony of the cardiac sphincter. This occurs as a direct result of the sclerodermatic process.

2. Difficulty in swallowing solids or liquids, especially when in the lying position, due to delayed emptying of the esophagus.

3. Burning pain behind the sternum about an hour after meals, worse on lying down and particularly on lying to the left side, due probably to regurgitation of gastric contents into the esophagus and resulting chronic esophagitis.

4. Chronic ulceration in the lower third of the esophagus, localized chiefly to the region just above the phrenic ampulla. This is probably a direct result of the esophagitis, with sclerodermatic changes as a predisposing factor.

5. Stricture formation in the later stages, limited to the region immediately above the phrenic ampulla of the esophagus.

Biopsies revealed changes in the connective tissue of the submucosa which suggest sclerodermatic change.

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9. Gray, Howard K., and Sharpe, Wendell S.: Benign Lesions at the Lower End of the Esophagus, Am. J. Surg. **54**: 252-261, 1941. Vinson, P. P.: Stricture of the Esophagus Occurring During Pregnancy, Am. J. Obst. & Gynec. **6**: 346-348, 1923; Cicatricial Stricture of the Esophagus of Unknown Origin, Surg., Gynec. & Obst. **52**: 955-957, 1931.

PSYCHIATRIC PROBLEMS IN THE ARMY

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The problems of psychiatry in the Army have fundamental common denominators to the practice of all specialties in the Army: the lack of trained manpower, the immense importance of speedy action and the most effective disposition of patients. In psychiatry these problems have certain specific connotations due to the nature of the illnesses in this specialty. These problems should be of vital interest and concern to every citizen interested in the war effort and particularly to medical men. They should be of interest, first, because of the great number of men whose army experience has brought to light their need for medical and particularly psychiatric help. This fact may be vividly portrayed by these figures: An average of 8 to 10 per cent of men examined for military service are rejected for psychiatric reasons, and nearly 30 per cent of the discharges from the Army are for psychiatric reasons. In contrast, only 2 per cent of the medical profession are psychiatrists. The social implication of these figures is enormous, but their importance to the medical profession is even greater.

Every internist is aware of the fact that even in normal circumstances in our prewar practice between 40 and 60 per cent of the patients seeking medical help present only functional disturbances. One major medical result of the war experience is the compelling necessity to focus our attention on a large section of our population who need and should have medical care and who previously may not have recognized this need themselves. No doubt there will also be a considerable increase in the number of individuals with disabling functional illnesses seeking help from the medical profession in every specialty.

How effective is the medical service in the Army? Comparatively few civilian physicians have any opportunity to see their army confrères in action. As one of your number until six months ago, it has been my privilege to visit and live in and inspect more than fifty of our army hospitals. I must report that I am greatly impressed with the efficiency of the medical organization of the Army. It is nothing short of remarkable that approximately forty thousand American physicians, a profession composed of rank individualists, can be brought together from all sections of the country, placed in a strange environment, thrown together with unfamiliar associates and within a few months be a highly efficient functioning medical group. This is what one finds in our station and general hospitals, both fixed and mobile. The caliber of medicine in every hospital I have visited in the seven states of the Fourth Service Command is comparable to or superior to that practiced in many of our old established civilian hospitals. Much of this efficiency is due to the excellent leadership and organization ability afforded by the regular army medical officers in charge of the hospitals and through them the guidance provided by the service command surgeons and the Surgeon General and his staff. Despite the lack of trained psychiatrists and the lack of facilities, the caliber of neuropsychiatry practiced in the Army is surprisingly good.

Read before the regional meeting of the American College of Physicians, Jacksonville, Fla., May 26, 1943.

In presenting the psychiatric problems in the Army, it may be helpful to review these in the chronological stages of the average soldier's experience, that is the induction center, following his arrival in camp, at the station (or general) hospital and finally in the combat area. Unfortunately for many, there will be eventually another stage, in the convalescent hospital.

INDUCTION CENTER

It is no secret that we are continuing to build a large army at great speed, taking in thousands of men every day. These men report first to our induction centers for one day, where the chief purpose is to examine the man and determine his qualifications to fit into the Army. A major consideration in this examination is the evaluation of his personality. In private practice this job requires several hours to even days or weeks. In the average induction center it is given one to three minutes. In many of our induction centers we have only two psychiatrists for the simple reason that there are no more available. These two men have the impossible job of attempting to evaluate the life adjustment and the mental stamina of from 300 to 500 men a day.[1] It is presumed that they must be crystal gazers, being able to look at a man thirty seconds, or maybe as long as a couple of minutes, and determine whether he is going to fit into the Army and whether he will make a fighting soldier.

In a few of our induction centers available civilian medical men are used and in a very few instances it is possible to follow the original War Department directive of one psychiatrist for each fifty men examined. In most of our induction centers we are far below this percentage of psychiatrists. Even with this woful lack of manpower we are finding an average rejection rate for mental disorders of 10 per cent of all inductees examined. In our induction boards in which a more careful examination is made, this figure rises to 15 per cent, and even higher.

From the total point of view, the induction boards are doing an excellent job with the facilities at hand. Many aids and technics have been developed to make our examinations more effective, even in psychiatry.[2] But from the point of view of the individual psychiatrist we are keenly aware that we are doing an inadequate job. There is no way we can avoid missing certain types of psychopathic characters. We cannot always identify the individuals addicted to chronic alcoholism who want to hide this fact from us. We cannot discover the epileptic who tell us untruths or if it is their desire to get into the Army who fail to tell us at all. One or two minutes is insufficient time to evaluate carefully a man with mild neurotic symptoms and whether these may in some cases be capitalized on illegitimately or on the other hand minimized.[3] The civilian physician could often be of tremendous help to the psychiatrist on the induction board if, through his local draft board, he would report on those men who are known in the community to be maladjusted, irresponsible, alcoholic or epileptic, particularly when the individual has been under his care. Very few draft boards supply any social histories even of such facts as serious mental illness or court records.

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There is a major responsibility involved in every decision that the psychiatrist makes regarding an inductee. For every case he approves for the Army which turns out to be a misfit or a psychiatric casualty, the cost in money and morale is inestimable. We know that the psychiatric casualties of the last war have occupied more beds in veterans' hospitals and have cost more money following discharge than all other cases together. Each man is estimated to have cost approximately $30,000,[4] The cost in investment of time and equipment to train a soldier in a fighting unit only to have him break or become a misfit is an undetermined but undoubtedly a large figure. The cost to the unit in morale, particularly if it occurs in combat in a foreign land, is devastating. Equally important is the fact that these men often are indirectly a great loss to the home front. Undoubtedly there are many individuals whose adjustment to life may not have been entirely satisfactory, even from their own point of view, but they have been an asset in the community; they have contributed in helpful occupations and if permitted to run their own lives and put in their eight hours a day could maintain their adjustment. When we make the mistake of forcing such a man into the Army with its discipline, its necessarily regimented way of life, its close proximity to people twenty-four hours a day, its many and varied threats, he cannot "take it" and he is not only lost to the community but lost to the Army and to himself.

It is important, further, that some consideration be given to the men who are turned down by the Army. The Surgeon General's Office issued a letter many months ago directing that every medical officer use the greatest consideration in turning a man down and suggested that advice be given the rejectee as to what help he might obtain. In a few larger communities social agencies are at work [5] in connection with the draft boards attempting to relocate these men and to provide them with advice and medical help in relation to their course following rejection.

Our great psychiatric problem, then, for the induction center is concerned with the fact that we are raising an immense army at great speed. We lack sufficient psychiatrists to examine the inductees adequately. It is the local draft board's responsibility, and through it every civilian physician, to aid not only in the selection of these men but in supplying medical and social histories about them. The opportunity to aid in the adjustment of the men who are returned by the induction board as unacceptable to the armed forces will also fall to the medical profession.

STATION HOSPITAL

Every civilian who comes into the Army must make radical readjustments and do so promptly if he is to fit into the organization. This adjustment is not easy and the result is that a large percentage of our breakdowns and our misfits, both physical and mental, make their appearance within the first few weeks.[6] Many of these men can be salvaged and for this reason in each of our large basic training camps, which are called replacement training centers, there are special training units under the direction of a psychiatrist.[7] In these training units the individual is given special opportunities to fit into the program at a little slower pace. Many such individuals who fail too flagrantly are discharged at this point in their training. Those who need hospital care or attention are referred to the station hospital, and in the smaller camps and the camps for advanced training the hospital serves as the clearing agency as well as the treatment center.

In our Army hospitals there are two types of problems confronting psychiatrists, administrative and clinical. In many ways these are inseparable and they also apply to every other field of medicine as practiced in the Army.

A major administrative problem confronting every army psychiatrist is the discharge procedure from the Army. Approximately half the soldiers admitted to the neuropsychiatric sections of our hospitals are recognized as being unfit for the Army. These men constitute nearly one third the discharges for all causes. It is the psychiatrist's responsibility not only to study his case and work up the hospital record but to engineer the discharge of the patient. Since different procedures are necessary for officers and enlisted men and different methods of discharge prescribed for different types of psychiatric diagnoses, considerable experience is required to expedite the discharge and the actual disposition of the patient. And, further, each case requires considerable investment of time. This investment of time becomes a major consideration from two angles: the shortage of psychiatrists and the filling of the wards with long-time patients for whom there is little opportunity for rehabilitation as a soldier.

A considerable number of physicians have been assigned to neuropsychiatric sections who have never had either training or special experience in this field, but the shortage of men has made this necessary. This situation is an additional handicap for every one and the lack of familiarity with diagnostic experience often contributes to slowing the disposition of the patient. A constant headache for every army psychiatrist is the arrangement for and actual transfer of his psychotic patients to a civilian or government hospital. The mechanics of this transfer are such that a soldier may in some cases have to remain for months in the army hospital occupying space and time from the medical officer that should be given to the potential soldier who can be rehabilitated for army service.

Because of the geographic nature of this war with the combat zones in foreign lands, special care must be used to eliminate the unstable. Our discharge rate of psychiatric cases might be materially reduced if our induction boards could be adequately staffed with psychiatrists. As the situation now stands, the rate will probably increase. Until the very recent past, too many unstable individuals were undetected and many were kept in the Army on the probably correct assumption that in a relatively protected environment they could function fairly effectively. But there is no guaranty that a relatively protected environment can be provided.

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In March the War Department reported that too many men who were mentally unsuited for ordinary military duties had arrived overseas and again cautioned that special consideration must be given to eliminating such individuals. Until recently a soldier with a mild psychiatric problem could be placed on "limited duty," that is retained in the Army but not assigned to combat duty, but this classification is now eliminated. Probably necessitated by inadequate psychiatric judgment on the part of many medical officers, a directive has recently been issued that all soldiers in whom a mental diagnosis is made, unless they will be able to return to full duty, are to be definitely eliminated from the Army.

Another administrative problem confronting the army psychiatrist, probably more so than other specialists, is the treatment opportunties [8] for his patients. This is more of an administrative rather than clinical problem for the reasons that it is a question of time, facilities and assistants. In the army hospital all of these are at a great premium. Furthermore, the Army has as its chief aim the winning of the war. Consequently those individuals who cannot be made into fighting soldiers must be passed on to those established government, state and community agencies for their further care and treatment.

It is not to be construed, however, that treatment efforts are completely lacking in our neuropsychiatric setups. In the replacement training centers, the psychiatrist often spends several hours in psychotherapy with a soldier. In our active consultation and outpatient clinics in the hospital, psychotherapy is widely used. Many of our hospitals are equipped with prolonged immersion tubes and pack beds. The Surgeon General's Office is making plans at the present time for the assignment of available occupational therapists to our army hospitals.

In most of the installations in the Fourth Service Command we have instituted an organized and planned occupation and recreation program, utilizing the aid of the Red Cross workers, nurses and ward attendants. Recently approval has been given for the use of shock therapy by qualified psychiatrists. Partially to solve the problem of too few psychiatrists, group psychotherapy has been used with some succcess.[9] In order to increase the effectiveness of these therapeutic efforts, the chief of the neuropsychiatric section in many of our hospitals in this command conducts a continuous training course in psychiatry for the nurses, ward attendants, occupational therapist and Red Cross workers.

In the clinical field there are many intriguing problems for the army psychiatrist. Various clinical pictures, rarely encountered in civilian practice, present themselves in great numbers. Severe nostalgia is extremely common and is recognized as a clinical entity;[10] enuresis in the adult is a common problem in the Army,[11] much more so than any one might have suspected; somnambulism, particularly in the Navy, is often a psychiatric problem; true malingering is probably rare, although except for special cases of compensation neurosis it is frequent in comparison with civilian practice.

Among the more severe mental reactions, anxiety attacks are most common. The anxiety is often acute though not attached to specific ideas; sometimes it is expressed in specific fears; undoubtedly it is often expressed in the form of somatic complaints. The most common acute psychotic episodes are schizophrenic in character. A special feature of many cases of this last type of illness has been the extremely short duration of the symptoms, lasting only a few days, or at most a couple of weeks.[12] The problem of feeblemindedness [13] is an extremely important one. In view of the fact that we do not have labor battalions in this war, every man has to be able to be a fighting soldier or there is no place for him.

Individuals with psychosomatic complaints constitute a large portion of the practice in the gastrointestinal, cardiac and orthopedic services. These soldiers, because of the nature of their complaints, are referred directly to these services. From various sources, particularly combat areas, there is evidence that the gastrointestinal disturbances are probably most frequent. The importance of the psychologic factors in the production of even the peptic ulcer is summarized by Thomas [14] as follows: "When viewed in a broad way, the mass of experimental and clinical observations which have been published recently emphasize the large part that is played by psychic factors in the production and continuation of peptic ulcer. A study of cases of peptic ulcer in the Army lends further proof to this concept." The great majority of cases seen in our army hospital gastrointestinal wards have not progressed to the ulcer stage.[15] All represent fundamentally a total personality disturbance and as such are primarily psychiatric problems. If regarded as such and so treated, many of these soldiers may be salvaged.

The so-called neurocirculatory asthenia,[16] brought to light in the last war, continues to be a fairly frequent finding, although it is too often regarded as having an entirely organic basis. Every army orthopedist is confronted too frequently with a syndrome of low back pain in which he finds no anatomic or physiologic explanation. In many hospitals they are referred to the neuropsychiatric wards and unfortunately they are rarely salvageable for the Army. One of the most common problems in this group of psychosomatic disturbances is headache in which no organic or chemical pathologic condition can be determined. They often present very difficult diagnostic problems. All of these reactions call for the closest of team work between the internist and the psychiatrist. The enormous frequency of their occurrence in the Army affords an unusual opportunity for research in the age old soma-psyche relationships.

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14. Thomas, H. M., Jr.: Peptic Ulcer in the Army, South. M. J. **36**: 287 (April) 1943.

15. Skobba, J. S.: Functional Gastrointestinal Diseases at Lawson General Hospital, South. M. J., to be published. Dunn.[19]

16. Oppenheimer, B. S.: Neurocirculatory Asthenia and Related Problems in Military Medicine, Bull. New York Acad. Med. **18**: 367 (June) 1942.

COMBAT AREA

The regimental surgeon deserves more than passing comment in his very important function of caring for the medical and public health problems of his regiment. Were it possible for these men to have psychiatric training, it seems possible that they would have more opportunity to use this experience than any other specialty of medicine. It is these officers who live with their soldiers in the field, who have the first hand contact with them in daily life, that are in the optimum position to help the average soldier adjust to the stresses and strains of discipline and hardship. To these regimental medical officers falls a major responsibility in the combat areas, with assistance from all the other medical field units, the surgical auxiliary teams, the first aid stations, the evacuation units, the numbered station and general hospitals.

To date our reports as to the number and type of our own psychiatric casualties have been meager. There is no doubt that such are occurring and we will probably find the same types reported by the British.[17] The disturbances are predominantly psychoneurotic reactions with anxiety states and hysteria most common. In the anxiety state there may or may not be definite fears. Nearly always there is insomnia, exhaustion and depression. Usually there are psychosomatic symptoms such as dizziness, nausea and vomiting, headaches, palpitation and tremor. The clinical picture in hysteria differs somewhat. It was my privilege to see a considerable number of such cases in one of our army general hospitals. There is almost a stereotyped story of a near hit by a bomb or shell, perhaps killing the other soldier in the same fox hole. The patient was "blown out" of the hole, sometimes presumably being injured by "hitting a nearby tree" or being thrown "thirty feet." This is then followed by a confused period of hours to days. Sometimes there were conversion symptoms: paralysis, anesthesia, aphonia, which cleared in a few hours to two weeks. Always the soldier was "jumpy" and "jittery." Many of the men seen had completely recovered.

A vivid description of neurotic casualties and their background which occurred in our own troops as the result of combat was presented at the recent meeting of the American Psychiatric Association in Detroit by Smith,[18] who examined 500 Marines with psychoneuroses at the Mare Island Hospital. He described them as a group of neuroses which has not been seen before and may never be seen again. They occurred in men who had been subjected to prolonged warfare, often several weeks. He discussed them vividly: "All of them in their composite story give a picture of physical and mental strain that combines the best of Edgar Allan Poe and Buck Rogers. One cannot help but believe that the enemy made a careful study of our psychology and our ways of thinking and living, and used this knowledge against us. . . . Most of us consider the night as a time for rest. . . . The Japs centered their activities during this period. They were taught a few American words or phrases, chiefly threatening or profane, and the dark hours were filled with this abuse. They were machiavellian in their cleverly timed bombings and raids.

"All of these men lost weight and none of them were pudgy when they landed on the beach. Weight losses in muscular, toughened young adults ran as high as 45 pounds. Rain, heat, insects, dysentery, malaria all contributed—but the end result was not blood stream infection nor gastrointestinal disease, but a disturbance of the whole organism, a disorder of thinking and living, of even wanting to live. . . .

"Fear of all kinds had to enter into the causative picture. Most men experienced fear as they approached the beach. Some tell you of their fear of being afraid and of feeling relief and exhilaration as soon as they went into actual combat. But new attacks, new near bomb hits would relight sudden fear. . . . As the weeks passed, hope left most of these men. . . . Soon they were sure that . . . they were expendable, doomed. . . . Fatigue wore them down, painful aching fatigue that they felt could never be relieved or cured."

Smith indicates that as a result of their ocean trip many of them were much better. They continued to show symptoms, sensitivity to sharp noises, tenseness, tearfulness. Approximately 30 per cent were sent back to limited duty. Many of them hang very much in the balance. In my own contact with a similar group of men, one could not be other than literally thrilled with their courage, with their desire to return to the fight, with their intense hatred of the enemy and the affection for their "buddies."

The early and prompt treatment of combat casualties is strongly recommended, and a surprising number, roughly 50 per cent, of these individuals can be returned to the fighting front.[19] The use of sedatives in large doses over several days has been effective in many instances. It has been learned that in general the farther the patient is removed from the field of action without treatment having been given, the more likely is his symptom complex to become fixed.

SUMMARY

The psychiatric problems of the armed forces are, first, the lack of psychiatrists and other trained personnel. From a long range view of not only the immediate problem but also for the tremendous postwar job, short intensive psychiatric training courses for physicians are very much in order. Our only answer to the immediate difficulty is to enlist and train assisting personnel who in any measure can aid in carrying the burden. This should include the utilization of psychologists, social workers, nurses and occupational and recreational therapists.

The second major concern confronting every physician, both in and out of the Army, is the number of psychiatric cases which the war experience has disclosed in our general population. The medical and social implications of this group are beyond our present ability to estimate.

The third major problem confronting the army psychiatrist is the rapid and most effective disposition of these maladjusted individuals in the Army. The first purpose of the Army is to win the war, and consequently these soldiers unfit for service must be given over to the care of civilian agencies and civilian physicians with the hope that they will accept the responsibility and provide treatment for these men in accordance with our most modern psychiatric concepts.

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ORCHIECTOMY IN THE TREATMENT OF CANCER OF THE PROSTATE GLAND

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There seems to be a prevailing notion that, once a diagnosis of cancer of the prostate has been made, all that is necessary to effect a cure is to perform an orchiectomy. It is extremely unfortunate that this opinion has become so widespread, since this form of treatment is of recent origin; I do not believe that enough time has elapsed since the procedure was instituted to talk about cures. The conclusions are hasty, since most statistical studies on the curability of cancer are based on five and ten year cures.

My results have not been as satisfactory as one would be inclined to believe they should be, judging from the literature. Those who have had experience with this treatment should report their results, as was recently done by Randall, who had treated 5 patients by this method. Four of the patients on whom he performed bilateral castration are dead and the fifth, although living, has extensive bone metastases.

I report here my experience in 11 cases.

REPORT OF CASES

CASE 1.—Dr. T. W., aged 67, was admitted to the Presbyterian Hospital on Aug. 19, 1939 because of symptoms and signs of prostatic obstruction, for which a transurethral resection was performed. The sections were reported as benign hypertrophy. Rectal examination at this time was negative for signs of cancer.

The patient was readmitted on Feb. 6, 1941 because of a return of his symptoms. Rectal examination at this time disclosed a good deal of infiltration and hardness of the right lobe of the prostate with some involvement of the seminal vesicle. A transurethral resection was performed and the sections were reported as adenocarcinoma.

He was admitted for the third time on June 1, 1941 because of profuse hematuria, pain, chills and fever. There were palpable lymph nodes in the right groin and a definite swelling of the right lower extremity. Roentgen examination revealed no evidence of bone metastases. He was placed on diethylstilbestrol 1 mg. three times a day.

He returned to the hospital on Aug. 9, 1942 complaining of severe pain in the penis and perineum on urination. The pain radiated down both legs to the heels. Blood was present in the urine. At this time the patient stated that because of the severity of the pain he was taking dilaudid every three hours. There was a slow but constant loss of weight. Rectal examination again disclosed a very hard, irregular, nodular prostate. Blood pressure was 160 systolic, 90 diastolic. Blood examination revealed 3,040,000 erythrocytes, 9,500 leukocytes and 12 Gm. of hemoglobin. Urinalysis revealed albumin and pus cells. Roentgen examination was negative for bone metastases.

A bilateral orchiectomy was performed on August 11, following which the patient was able to go for nine hours without dilaudid. There was some improvement in the perineal and leg pain and in the pain on urination.

The patient reentered the hospital on Sept. 20, 1942 because of severe pain in the bladder, pain on urination and a steady increase in the obstructive symptoms. Nonprotein nitrogen was 47 mg. per hundred cubic centimeters of blood. Roentgen examination disclosed no bone metastases. Acid phosphatase was 4.5, alkaline phosphatase 11.2. The bleeding points were fulgurated and the necrotic tissue was resected. The patient was discharged in four days.

Thereafter he continued to pursue a steady downhill course. The pain was very severe and was not controlled by large doses of morphine. The patient died on Jan. 18, 1943, five months after the orchiectomy.

From the Presbyterian Hospital of Chicago.

CASE 2.—Dr. A. S., aged 72, was admitted to the Presbyterian Hospital on Sept. 15, 1942 complaining of nocturia, frequency, a small stream and severe pain in both hips for three months and in the lower back for six months. There had been a loss of 40 pounds (18 Kg.) in the past two years.

Physical examination revealed a mass in the abdomen which was hard, irregular and about the size of an orange, and located to the right of the umbilicus. On rectal examination the prostate was found to be enlarged, hard, nodular and fixed. Blood pressure was 118/62. Blood examination revealed 3,940,000 erythrocytes, 8,000 leukocytes and 12 Gm. hemoglobin. Urinalysis disclosed many pus cells. Nonprotein nitrogen was 52 mg. per hundred cubic centimeters of blood. Roentgen examination revealed the presence of metastases to the pelvic bones.

Bilateral orchiectomy was performed on September 21. Within three days the patient thought the pain in the back and legs was better. There was much improvement in his appetite. He was discharged on the thirteenth postoperative day (October 4).

The patient was readmitted to the hospital nine months after the orchiectomy, complaining of loss of weight, weakness and pains in the thighs requiring codeine for relief. There was an increase in the low back pain, making turning or bending almost impossible. Roentgen examination disclosed definite increase in the bone metastases to the pelvis; there was now present evidence of metastases to the spine and ribs.

The patient died on July 3, 1943, nine months after the orchiectomy.

CASE 3.—G. O., aged 68, was admitted to the Presbyterian Hospital on Oct. 7, 1940 complaining of both day and night frequency of urination, difficulty in starting the stream, pain on urination, complete retention and dribbling after urination.

Physical examination was negative except for an umbilical hernia and a suprapubic tumor due to the distended bladder. Rectal examination disclosed an enlarged, hard, nodular prostate. Blood pressure was 140/80. Blood examination was normal. Urinalysis revealed red blood cells 4+, white blood cells 1+, no sugar or albumin. Roentgen examination did not disclose evidence of bone metastases.

A transurethral resection was performed on October 11. The sections disclosed adenocarcinoma. The patient was discharged on the fifth postoperative day.

He was readmitted to the hospital on June 22, 1942 because of a return of his urinary symptoms. A second resection was performed and again the microscopic diagnosis was adenocarcinoma. The patient was given diethylstilbestrol 3 mg. daily.

He was admitted to the hospital for a third time on Oct. 20, 1942 because of severe pain in the right hip, pains in the legs and gross hematuria. Roentgen examination did not disclose evidence of bone metastases.

Bilateral orchiectomy was performed on October 22. Six months after the operation the patient again had severe pain in the perineum, penis and legs, and intermittent hematuria. He continued to fail progressively and died on Sept. 30, 1943, eleven months after the orchiectomy.

CASE 4.—D. E., aged 68, was admitted to the Presbyterian Hospital on Jan. 25, 1943 complaining of frequency of urination, every thirty minutes, and a nocturia of one to three times for the past five years. For three months he had severe pain in the back, right hip and right leg, requiring codeine and acetylsalicylic acid. Five days before admission he developed gross hematuria. He was thin, emaciated and extremely ill. Blood pressure was 176/100. The prostate was enlarged, hard, fixed and very irregular. Blood examination showed erythrocytes 3,090,000, leukocytes 12,000 and hemoglobin 11 Gm. Urinalysis disclosed albumin 2+, red blood cells and white blood cells. Roentgen examination revealed areas of bone destruction in the left pubic and sacral bones and in the region of the right acetabulum.

Transurethral resection and bilateral orchiectomy were performed on January 28. Sections disclosed carcinoma. Within eight days the patient could move his leg with much less pain and was able to turn himself in bed. Sedation was no longer required. He left the hospital on February 21. Eight months after orchiectomy there was a recurrence of pain in both hips

and legs and considerable swelling of the legs. Appetite was poor and he was beginning to lose weight.

CASE 5.—H. F., aged 66, was admitted to the Presbyterian Hospital on Dec. 22, 1942 complaining of nocturia, difficulty in starting the stream, and a thin stream for two years. He had two attacks of hematuria two months previously.

Physical examination disclosed a soft systolic murmur at the apex, and a palpable liver. On rectal examination the prostate was found to be enlarged, hard and fixed, with a definite nodule on the left lobe. The blood pressure was 150/90. Blood examination was normal. Urinalysis revealed albumin, blood and an occasional white blood cell. Nonprotein nitrogen was 38 mg. per hundred cubic centimeters of blood. Roentgen examination disclosed no evidence of bone metastases.

On December 24 a transurethral resection was performed. The sections revealed adenocarcinoma. A bilateral orchiectomy was performed on December 30. The patient was discharged from the hospital on Jan. 9, 1943. Seven months following orchiectomy a letter from the patient's local doctor stated that there was no difficulty of urination, no albumin or sugar in the urine, and that since the operation the patient had complained moderately of pain in the sacral region, extending down the right leg.

Results of Orchiectomy in Eleven Cases

Name	Age	Duration of Symptoms	Bone Metastases	Time Since Orchiectomy	Result
1. Dr. T. W.	67	1½ yr.	+	5 mo.	Died
2. Dr. A. S.	72	6 mo.	+	8 mo.	Died
3. G. O.	68	2 yr.	0	11 mo.	Died
4. D. E.	68	5 yr.	+	6 mo.	Pain in hips and legs; swelling of legs; loss of weight
5. H. F.	75	2 yr.	0	7 mo.	Moderate pain in sacral region extending down leg
6. H. W.	75	4 yr.	0	11 mo.	No change in leg pains
7. E. L.	75	6 mo.	+	9 mo.	Bedridden; loss of weight; frequent use of morphine; increase in bone metastases, with new areas of involvement
8. G. S.	60	2 yr.	0	6 mo.	Painful urination; gross hematuria
9. W. R.	77	5 yr.	0	11 mo.	Improved
10. F. W.	77	2 yr.	0	7½ mo.	Feels well
11. J. C.	67	3 mo.	+	4 mo.	Improved

CASE 6.—H. W., aged 75, was admitted to the Presbyterian Hospital on Aug. 24, 1942 complaining of frequency of urination both day and night for four years. In addition, he complained of pain in both legs on walking and the loss of 20 pounds (9 Kg.) in one year. He had had a transurethral resection of the prostate in another hospital and the sections were reported as adenocarcinoma. Rectal examination disclosed the prostate to be enlarged and hard, but smooth. Blood pressure was 195/75. Blood examination was normal. Urinalysis revealed albumin and pus cells. Roentgen examination did not disclose evidence of metastases.

Bilateral orchiectomy was performed on August 25. The patient was discharged on the eighth postoperative day. In the eleven months since orchiectomy he has gained 10 pounds (4.5 Kg.) and his appetite is good, but there has not been any change in the pains in the leg.

CASE 7.—E. L., aged 75, was admitted to the Presbyterian Hospital on Oct. 20, 1942 complaining of frequency of urination both day and night, and pain in the right hip for six months. The prostate was enlarged, hard and nodular. The blood pressure was 160/80 and the blood count normal. Urinalysis was negative. Nonprotein nitrogen was 29 mg. per hundred cubic centimeters of blood. Roentgen examination disclosed destruction of the body of the third lumbar vertebra and of the right iliac bone, suggesting metastases.

Transurethral resection and bilateral orchiectomy were performed on October 23. The sections disclosed adenocarcinoma. Following the operation the patient stated that there was definite improvement in the pain in the hip. Nine months after orchiectomy he was completely bedridden with severe pain in both hips which required frequent use of morphine. There was progressive loss of weight. A recent roentgen examination revealed definite increase in the bone metastases.

CASE 8.—G. S., aged 60, was admitted to the Presbyterian Hospital on Jan. 17, 1943 complaining of frequency, urgency, nocturia, difficulty in starting the stream, a slow thin stream and dysuria, which had been present for two years. Rectal examination disclosed a hard, fixed, enlarged and nodular prostate. Blood pressure was 160/90. Blood examination revealed erythrocytes 4,700,000, leukocytes 7,000 and hemoglobin 14.5 Gm. Urinalysis was negative. Nonprotein nitrogen was 32. Roentgen examination disclosed no evidence of bone metastases.

Transurethral resection was performed on January 19 and the sections revealed adenocarcinoma. On January 28 bilateral orchiectomy was performed.

Six months after his discharge from the hospital the patient complained of pain on urination, which had become steadily worse. There have been intermittent attacks of gross hematuria.

CASE 9.—W. R., aged 77, was admitted to the Presbyterian Hospital on June 18, 1942 complaining of frequency of urination both day and night for five years, a small, thin, weak stream for three years, and complete retention for eighteen hours. The patient had lost 20 pounds (9 Kg.) in the preceding three months. He was drowsy and fatigued.

Physical examination was essentially negative, except for a distended bladder. Rectal examination revealed the prostate to be enlarged, hard, fixed and nodular, and there was an extension of the carcinoma beyond the capsule. The blood pressure was 99/52. Blood examination was normal. Urinalysis disclosed albumin 2 +, a few red blood cells, and 100 white blood cells to the low power field. Nonprotein nitrogen was 46 mg. per hundred cubic centimeters of blood. Roentgen examination did not disclose evidence of bone metastases.

A transurethral resection was performed on June 23 and the sections were reported as benign prostatic hypertrophy, though this did not fit in with the findings on rectal examination. The patient was given diethylstilbestrol 3 mg. daily. He was readmitted to the hospital on Aug. 9, 1942 because of frequency, nocturia and persistence of pyuria. On Aug. 12, 1942 a transurethral resection and bilateral orchiectomy were performed. The sections again disclosed hyperplasia. He left the hospital on Sept. 4, 1942. A letter from his local physician eleven months after orchiectomy stated that the patient was as normal as any man could be at his age.

CASE 10.—F. W., aged 77, admitted to the Presbyterian Hospital on May 18, 1942, had been obliged to void one or two times at night for the preceding ten years. He had slight burning on urination, frequency during the day and a small stream. Physical examination was negative except for a distended bladder that reached to the umbilicus. The prostate was enlarged, hard and nodular. Blood pressure was 138/58. Blood examination revealed erythrocytes 3,008,000, leukocytes 6,500, hemoglobin 12.5 Gm. Urinalysis disclosed blood cells in the sediment. Nonprotein nitrogen was 38 mg. per hundred cubic centimeters of blood. Roentgen examination did not disclose evidence of bone metastases.

Transurethral resection was performed on December 12. The sections disclosed adenocarcinoma. Following resection the patient was unable to void and a second resection was performed on December 22. Bilateral orchiectomy was performed eight days later. Convalescence was uneventful and he left the hospital on Jan. 13, 1943. Seven and a half months after orchiectomy there was no change in the prostate on rectal examination; however, the patient stated that he felt well.

CASE 11.—J. C., aged 67, admitted to the Presbyterian Hospital on March 9, 1943, had had symptoms for three years consisting of both day and night frequency, a slow, thin stream and difficulty in starting the stream. He had lost 8 pounds (3.6 Kg.) during the past three months. Pains in the right hip and leg had been present for three months.

Physical examination was essentially negative. On rectal examination the prostate was found to be enlarged, very hard and slightly irregular. Blood pressure was 136/80. Blood examination was normal. Urinalysis disclosed a trace of albumin but was otherwise negative. Nonprotein nitrogen was 39 mg. per hundred cubic centimeters of blood. Roentgen

examination revealed metastases involving the fifth lumbar vertebra, the sacrum and both pubic bones.

Transurethral resection was performed on March 11, 1943. Microscopic diagnosis was adenocarcinoma of the prostate. On March 25 a bilateral orchiectomy was performed. The patient was discharged from the hospital on April 6. A report from the local doctor stated that the patient was feeling well, only four months after the operation.

COMMENT

From a review of the table it is evident that the results are anything but desirable. Three of the patients are dead five, eight and eleven months respectively after orchiectomy; 1 patient is bedridden, requiring frequent doses of morphine; 3 patients have pain; 1 patient has painful urination and attacks of hematuria; 1 patient states that he is improved eleven months after orchiectomy, another seven and a half months and 1 four months.

Some of the patients experience a feeling of well being immediately after orchiectomy. In 2 of the patients who died this was indeed short.

The time is ripe to evaluate and to correct misconceptions concerning the efficacy of castration in the treatment of cancer of the prostate.

In the evaluation of this form of treatment it should be remembered that in cancer in other parts of the body statistical results are based on five or ten year studies of so-called cures.

122 South Michigan Avenue.

SUPPURATIVE MYOSITIS AND PURULENT ARTHRITIS COMPLICATING ACUTE GONORRHEA

REPORT OF A CASE

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The rarity of suppurative gonococcic myositis and the recent interest in the effectiveness of penicillin in cases of gonococcic infections that are resistant to sulfonamide therapy [1] has prompted the present report.

REPORT OF CASE

A Negro youth aged 16, single, entered the hospital on May 20, 1943 complaining of pain and swelling in the left calf and left knee.

Three weeks prior to entry, and four days after his last sexual exposure, the patient had noticed the onset of urinary frequency, burning and pyuria. Two days following the onset of urinary symptoms he applied for treatment in the genitourinary clinic of the outpatient department, where gonococci were cultured from the urethral exudate. He was given nine daily instillations of potassium permanganate solution into his anterior urethra, and sulfathiazole was prescribed for oral use. The patient took 4 Gm. of sulfathiazole on the first day and 3 Gm. daily for two weeks. After seven days of this therapy all urinary symptoms had disappeared, the urine became clear and the patient apparently was cured. However, two days later he began to have cramplike pain in his left calf. The calf became swollen and increasingly painful and tender. Four days later the left knee joint became stiff, painful and swollen. Sulfathiazole was continued for another day, but progression of pain and swelling in the leg caused the patient to stop taking the drug and three days later he entered the hospital.

From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital.

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At the age of 3 the patient had severe rickets, necessitating bilateral tibial osteotomies, the results of which were excellent. At 11 years he had pneumonia of the right lower lobe followed by bronchiectasis of that lobe, which was successfully treated by lobectomy. He admitted numerous sexual exposures since the age of 9 years.

The patient was well developed and nourished and was in no apparent distress. Except for a long lunar scar on the right side of the thorax and bilateral scars at the sites of the tibial osteotomy, abnormal physical findings were confined to the left leg. The left calf was swollen so that its circumference was approximately twice that of the right. The entire left calf was swollen, indurated, hot, exquisitely tender and slightly fluctuant. The overlying skin was tight and shiny but otherwise normal. The left knee was greatly enlarged, tense, hot and tender. It was held in slight flexion and could not be moved more than 5 degrees from this position. Fluctuation was present and the patella was ballottable. No abnormalities of the external genitals or prostate were detected. The temperature on entry was 99 F., the respirations were 20 and the pulse rate was 100. The blood pressure was 140 mm. systolic and 80 mm. diastolic.

On admission the urine was normal except for an occasional leukocyte. The hemoglobin was 85 per cent; the leukocyte count was 15,000 per cubic millimeter, of which 88 per cent were polymorphonuclears. Blood culture yielded no growth; the gonococcus complement fixation test was positive and the blood Hinton reaction was negative. The nonprotein nitrogen was 27 mg. per hundred cubic centimeters. Aspiration of the left synovial cavity yielded 150 cc. of a thin, yellow, purulent fluid, in which gonococci were demonstrable both on smear and on culture. Six days after admission, 30 cc. of a serosanguineous fluid was removed from the left calf. Numerous characteristic, gram negative intracellular diplococci were seen on smear of this exudate, and from it gonococci were easily grown on culture. Six blood cultures taken during the patient's stay in the hospital were all sterile. Prostatic smear and culture on June 8 yielded no organisms.

Strict bed rest was instituted, and a light cradle was placed over the patient's legs. On the day following admission, treatment with sulfamethazine was started. An initial dose of 4 Gm. was given followed by 1 Gm. every four hours thereafter for a period of nine days. Blood concentrations of the free drug averaged 8 mg. per hundred cubic centimeters. After a week of this therapy there was no improvement in the leg infection and the patient's temperature on several occasions reached 104 F.

On May 27 the left calf was incised and drained by Dr. Stephen Bartlett. A 4 inch incision was made through the fascia into the pus pocket on the medial side of the left calf. The pocket, explored by finger, extended into and between the soleus and gastrocnemius muscles and was 4 inches long and 2 inches deep. A counter incision was made on the posterior aspect of the calf. Approximately 250 cc. of a bloody semipurulent fluid was removed. Gonococci were again grown from this exudate. Two Penrose drains were inserted. The wound was packed with iodoform gauze and irrigated twice daily with diluted solution of sodium hypochlorite. All pain, tenderness and swelling disappeared from the calf, and the wound completely healed in the course of six weeks.

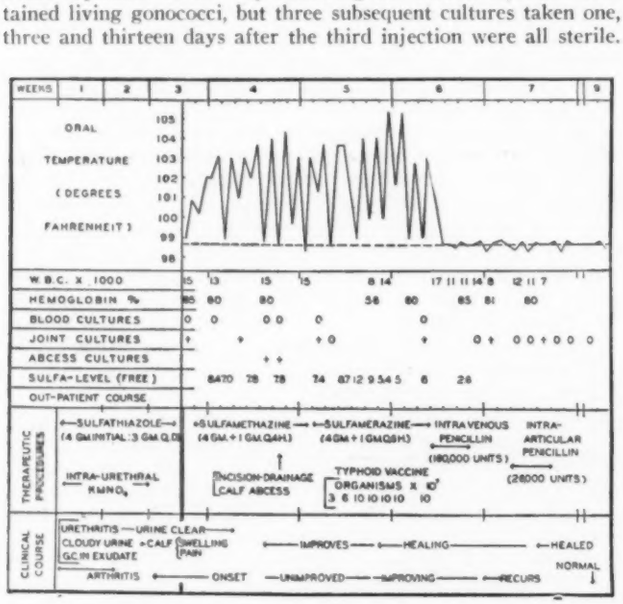
The patient continued to have rises in temperature to about 104 F. late each evening. On May 30 sulfamethazine was discontinued and was replaced by sulfamerazine, beginning with a 4 Gm. dose followed by 1 Gm. every six hours. On the next day fever therapy was started. Daily injections of typhoid vaccine were given intravenously during seven consecutive days, the individual doses being increased gradually from 30 million to 100 million organisms. Each injection was followed by a shaking chill. Oral temperatures reaching 104 F. for periods of six to seven hours were attained on two occasions, and 105 F. for six hours on one occasion.

On June 7, although the fever had again subsided temporarily, there was no appreciable improvement in either the patient's general condition or the appearance of his knee. Both the sulfamerazine and the fever therapy were therefore discontinued. Aspiration of the knee joint at this time yielded 60 cc. of thin pus, from which gonococci were cultured.

Beginning June 8, through the kindness of Dr. Chester S. Keefer and Dr. Donald Anderson, the patient was treated with penicillin. At first he was given 10,000 Oxford units intravenously every three hours for forty-eight hours, the total dose by this route being 160,000 units. Immediately after this therapy the patient's temperature became and remained normal. The knee joint improved considerably, pain and temperature subsided and motion returned. There remained a slight swelling.

The improvement following the intravenous pencillin therapy continued for about a week, when a recrudescence of infection in the left knee occurred. There was again a slight increase in the size, temperature and tenderness of the joint. Aspiration on June 18 yielded 15 cc. of thin yellow pus, from which gonococci were again cultured. The knee continued to swell, becoming increasingly painful and tender.

On June 24, 8,700 Oxford units of pencillin in 15 cc. of sterile isotonic solution of sodium chloride was injected directly into the affected joint. This procedure was repeated on two successive days, the total dose injected being 26,100 Oxford units. Fluid aspirated on the day following the second injection contained living gonococci, but three subsequent cultures taken one, three and thirteen days after the third injection were all sterile.



Clinical course, laboratory findings and treatment.

Following the third injection of penicillin, the left knee slowly decreased in size and all tenderness disappeared. On July 6 the patient was allowed up, and on July 14, fifteen days after admission, he was discharged, apparently cured. At this time the knee joints were the same in size and the patient walked without a limp. The calf incisions were well healed. The salient features of the clinical course, laboratory findings and therapy are shown graphically in the chart.

The patient returned three weeks after discharge, at which time both the left knee and the left calf appeared normal.

COMMENT

This case of acute gonorrheal urethritis complicated by suppurative myositis and purulent arthritis was treated with small daily doses of sulfathiazole. This resulted in an apparent cure of the anterior urethritis but did not prevent the subsequent development of suppurative myositis and arthritis. The soft tissue abscess was cured by incision and drainage. The purulent arthritis failed to respond to usual doses of sulfamethazine or to sulfamerazine supplemented by intravenous typhoid vaccine. Penicillin administered intravenously was followed by a temporary improvement. Only after the penicillin was injected into the synovial cavity did the symptoms and signs of arthritis disappear. Cultures of the synovial fluid became sterile only after the last instillation of penicillin into the joint.

Suppurative gonococcic myositis proved by smear and culture is an infrequent complication of gonorrhea. Jeck [2] stresses its rarity. Herlitz [3] states "In perusing the literature I have not been able to find more than a few cases where a gonorrheic infection localized to the muscles was demonstrated or even probable." Newburger [4] reports 7 cases of suppurative myositis in his review of the literature in 1926. None of these cases, however, would meet present day standards of bacteriologic diagnosis. Rubi's [5] comprehensive review included 21 cases of gonococcic myositis, 10 of which were of the suppurative form, the others showing a diffuse type of inflammation.

There is no uniform agreement in the literature concerning the mechanism of abscess formation. In most cases the abscess was preceded by a genital infection. The interval varied from a few weeks to several years. Most abscesses occurred by direct extension from an infected joint [6] and were more common than primary muscle abscesses. The most widely held opinion [6] is that the primary muscle or subfascial abscesses formed during a period of blood stream invasion in an area previously injured, the *locus minoris resistentiae*. In one of the cases reported [4] an abscess developed in an old hematoma. The muscles of greatest use are the ones reported as having been involved; these include the posterior axillary fold, the calf [7] and the thigh, as well as the psoas major, the latissimus dorsi,[8] the posterior tibial [9] and the masseter.

The treatment reported as being most successful,[10] and that employed in this case, has been surgical incision with open drainage and daily irrigations. Our patient also received sulfamethazine before and after surgery.

This case may represent an example of the development of sulfonamide resistance following inadequate doses of the drug.[11] It was found that the strain of gonococcus from this case would grow readily on mediums containing high concentrations of the various sulfonamides.[11a] It is, of course, impossible to say whether or not the strain was originally sulfonamide resistant or whether it developed this resistance after exposure to the low concentrations of the drug used early in the course of treatment. Because the development of sulfonamide resistance has been demonstrated experimentally, the majority of workers in this field now recommend a compromise between the small 2 to 3 Gm. daily dose and the full dose of 6 Gm. daily as used in the treatment of lobar pneumonia.[12] The com-

2. Jeck, H. S.: Nelson New Loose Leaf Medicine, New York and Toronto, Thomas Nelson & Sons, 1941, p. 2071.
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4. Newburger, B.: Metastatic Intramuscular Gonococcal Abscess, Ann. Surg. **84:** 879-885 (Dec.) 1926.
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6. McCrea, Thomas, and Funk, E. H.: Modern Medicine, ed. 3, Philadelphia, Lea & Febiger, 1925, Vol. 1, p. 673.
7. Wynn, W. H.: General Gonococcal Infection, Lancet **1:** 352, 1905.
8. Ware, M. W.: Gonorrheal Myositis, Am. J. M. Sc. **122:** 40 (July) 1901.
9. Schlesinger, E.: Apostematous Gonorrheal Myositis, Deutsche mil.-ärztl. Ztschr. **35:** 357, 1906.
10. Blumer, George: The Oxford Medicine, New York, Oxford University Press, 1940, vol. 5, pp. 62-63. Randall, S., and Orr, T. G.: Suppurative Subcutaneous and Subfascial Gonococcus Infections, Am. J. Surg. **12:** 117-119 (April) 1931. Harris, N. M., and Haskell, L. W.: Concerning a Case of Suppurative Myositis Caused by Micrococcus Gonorrheae (Neisser), Bull. Johns Hopkins Hosp. **15:** 395-397 (Dec.) 1904. Jeck.[2]
11. Sulfonamide Fastness, editorial, U. S. Nav. M. Bull. **41:** 1165 (July) 1943.
11a. Dr. H. S. Ginsberg of the Thorndike Memorial Laboratory made this observation.
12. Cohn, Alfred: A Résumé of the Year's Research in Gonorrhea. Am. J. Syph., Gonor. & Ven. Dis. **27:** 403-410 (July) 1943. Harrold, R. D.: Modern Management of Infections in Urinary Tract, J. Michigan M. Soc. **42:** 190-195 (March) 1943. Sulfonamide Fastness.[11]

monly accepted dosage for the treatment of acute gonorrheal urethritis at present is 4 Gm. of sulfathiazole or sulfadiazine every day for five to seven days. Though it cannot be stated with certainty, the urethral instillations of potassium permanganate may have been instrumental in the dissemination of the infection. Most medical authorities have condemned this practice in the treatment of acute gonococcic urethritis since the sulfonamides have come into use.[13] Fever therapy with intravenous typhoid vaccine was without effect in this case, and this has been the experience of most observers, although occasional satisfactory results have been reported with more intensive application of this form of treatment. The hypertherm cabinet is more effective than typhoid vaccine for fever treatment in such resistant cases of gonococcic arthritis.

Another interesting aspect of this case is the employment of penicillin, first intravenously without curative effect and then by local injection into the joint space which resulted in sterilization of the synovial fluid and relief of symptoms.

SUMMARY

A case of acute gonorrheal urethritis complicated by suppurative myositis and purulent arthritis was seen. The anterior urethritis was treated with potassium permanganate instillations intraurethrally and small doses of sulfathiazole by mouth with apparent success. The suppurative myositis responded to incision and drainage. The purulent arthritis was treated successively with sulfamethazine, sulfamerazine and intravenous typhoid vaccine, intravenous penicillin and finally intrasynovial penicillin. Lasting improvement in the infected joint and sterilization of the synovial fluid occurred only after three intra-articular instillations of penicillin.

Suppurative gonococcic myositis is an infrequent complication. Inadequate doses of sulfonamide drugs and the use of urethral instillations or manipulations in the early treatment of the acute gonorrhea may be responsible for metastatic gonococcic infections.

13. Vonderlehr, R. A.; Adair, F. L., and others: The Management of Gonorrhea in General Practice, Ven. Dis. Inform. **24**: 127 (May) 1943.

Virus Transmission.—The transmission of viruses occurs not only by man himself but also through the agency of certain insects. Most viral infections in man are transmitted directly from one infected individual to the next by direct contact. Usually it is not possible to speak more specifically than this, since the actual means of transfer of the agent is not known. In a few of the viral infections, for example, yellow fever, the agent is transferred directly from one individual to another by the mosquito. The portals of entry for most of the human viruses are the skin and the mucous membranes of the nasopharynx and the intestinal tract. Some of the viruses produce generalized effects immediately following their invasion of the skin and mucous membranes, while others produce both a local lesion at the site of entry and other lesions in tissues quite far away; the typical lesion may occur not at the portal of entry but in the internal organs. Transmission along the axis cylinders of the nerves has been demonstrated conclusively by Goodpasture and his associates in the case of herpes virus, but the possibility of spread of this virus also by means of the blood has been emphasized by the recent work of Anderson. There seems to be little doubt that the circulating blood is the usual means of dissemination of viruses in all those diseases characterized by widely disseminated lesions.—Forbus, Wiley D.: Reaction to Injury, Baltimore, Williams and Wilkins Company, 1943.

CORD COMPRESSING LESIONS WITH NORMAL QUECKENSTEDT SIGN

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It is not an uncommon experience in neurologic practice to be presented with a patient having all the signs and symptoms of a compressing lesion of the spinal cord above the level of the second lumbar vertebra but with the complete absence of manometric block. Doubt will exist as to the etiologic explanation of the illness, but usually a neurosurgeon is eventually consulted and exploration is performed. Then one frequently finds a normal appearing spinal cord with no macroscopic evidence of neurologic disease.

Most authors who have written on this subject since Queckenstedt's original work in 1916 have referred to the diagnostic importance of spinal fluid block but have not indicated what should be done when this valuable sign is absent. Of 235 cases of this type reported by Stookey and Klenke [1] in 1928, 125 showed normal dynamics of the spinal fluid, and 10 of the patients underwent surgical exploration. Of the 10, 2 showed enlargement of the spinal cord (possibly intramedullary tumor), 4 atrophy, 1 intramedullary gliosis and 1 radiculitis of the cauda equina; in 2 the cord appeared normal. Stookey later concluded that herniated nucleus pulposus in the cervical region seldom produces block [2] and that adhesive spinal arachnoiditis occasionally does not.[3] Ayer [4] noted the possibility of a tumor of the spinal cord with normal dynamics of the spinal fluid and reported 1 case. Sachs and Glaser [5] recorded 2 cases without manometric block, while Soltz and Jervis [6] found 2 of 5 tumors of the cervical region producing no manometric abnormality. Pappen and Hurxthal [7] in 1934 reported a case of tumor of the spinal cord at the thoracic level with a normal Queckenstedt sign. They claimed that manometric abnormalities occur only if the opening left by the tumor and cord are smaller than the spinal needle, on the basis that the flow of the fluid through a larger opening cannot be measured through a smaller one.

This presentation of a few figures on the subject was stimulated by the numerous expressions of doubt as to the advisability of surgical intervention in the absence

Dr. Foster Kennedy gave invaluable aid in the preparation of this paper.

From the Neurologic Service, Bellevue Hospital (Cornell Division; Dr. Foster Kennedy, chief of service) and the Department of Psychiatry (Syracuse Psychopathic Hospital), Syracuse University College of Medicine (Dr. Fleiss).

1. Stookey, Byron, and Klenke, Dorothy: A Study of the Spinal Fluid Pressures in Differential Diagnosis of Diseases of the Spinal Cord, Arch. Neurol. & Psychiat. **20**: 84 (July) 1928.

2. Stookey, Byron: Compressions of the Spinal Cord and Nerve Roots by Herniation of the Nucleus Pulposus in the Cervical Region, Arch. Surg. **40**: 417 (March) 1940.

3. Stookey, Byron: Adhesive Spinal Arachnoiditis Simulating Spinal Cord Tumor, Arch. Neurol. & Psychiat. **17**: 151 (Feb.) 1927.

4. Ayer, J. B.: Spinal Subarachnoid Block as Determined by Combined Cistern and Lumbar Puncture, Arch. Neurol. & Psychiat. **7**: 38 (Jan.) 1922.

5. Sachs, Ernest, and Glaser, Mark A.: Definite Level Symptoms Suggesting Spinal Tumor: Study of Thirty-Three Patients Subjected to Laminectomy, J. A. M. A. **88**: 308 (Jan. 29) 1927.

6. Soltz, S. E., and Jervis, G. A.: Extramedullary Tumors of the Upper Cervical Portion of the Spinal Cord, Bull. Neurol. Inst. New York **6**: 274 (Aug.) 1937.

7. Pappen, J. L., and Hurxthal, L. M.: Normal Cerebrospinal Fluid Dynamics in Spinal Cord Tumor Suspects, J. A. M. A. **103**: 391 (Aug. 11) 1934.

of manometric block. Such an expression is usually made shortly after an apparently normal cord has been exposed.

The problem occurs only when the level involved is above the cauda equina or the conus medullaris. Many space occupying lesions below the spinal cord do not change the dynamics of the spinal fluid. Most frequent of them is the herniated intervertebral cartilage. The level of the second lumbar vertebra was chosen arbitrarily to represent the lower limit of the spinal cord, and no lesions at or below this level were included in the present study. Conditions such as multiple sclerosis, neuromyelitis optica and virus infection of the spinal cord, which sometimes produce a level lesion but cannot be expected to improve through surgical means, are not being considered.

In the neurologic service at Bellevue Hospital (Cornell Division) in New York during a thirteen year period, 1930 to 1942 inclusive, 20 patients suspected to have a compressing lesion of the spinal cord above the second lumbar vertebra were operated on in the presence of a perfectly normal Queckenstedt sign. The suspicion of the presence of a space occupying lesion was not strong with regard to some of these patients, but, since there was a doubt, surgical procedures were undertaken.

Of the 20 patients with an "open" spinal fluid system, 10 showed some pathologic process intruding on the spinal cord for which surgical intervention bore hope of improvement. Of these 10, 6 had a definite space occupying localized compressing lesion, such as a ruptured intervertebral cartilage or a tumor (table 1). In other words, 30 per cent of the patients in this series suspected of having a cord compressing lesion did have just such a pathologic condition, for which surgical measures are indicated, despite the absence of spinal block. Another 20 per cent (table 2) displayed a lesion in the nature of arachnoiditis or of pachymeningitis in which the separation of adhesions is known occasionally to result in mild improvement. The remaining 10 with exploration, or 50 per cent of the patients in this series (table 3), showed a normal appearance of the spinal cord, atrophy of the cord or other noncompressing pathologic change. An occasional patient of this type, often referred to as having "intrinsic cord disease," is known to display, in some mysterious fashion, considerable improvement after laminectomy, despite the failure to find gross pathologic abnormality. Relationship of such a remission to the surgical procedure is certainly not proved but has been suggested.

TABLE 1.—*Localized Cord Compressing Lesions*

No.	Pathologic Diagnosis	Protein Content, Mg. per 100 Cc.	Sensory Level	Sacral Anesthesia
1	Extramedullary endothelioma C_7-D_1	120	Concise C_7	Present
2	Ruptured intervertebral disk C_5	220	Concise C_5	Present
3	Ruptured intervertebral disk C_5	120	Uncertain C_4-D_2	Present unilaterally
4	Extradural endothelioma D_{10}	30	Concise D_{10}	Present
5	Meningioma	100	Uncertain D^8-D^{10}	Questionable
6	Herniated disk C_4	45	Uncertain C_4-C_5	Absent

TABLE 2.—*Meningeal Adhesions*

No.	Pathologic Diagnosis	Protein Content, Mg. per 100 Cc.	Sensory Level	Sacral Anesthesia
17	Adhesive arachnoiditis; varicosities and atrophy of the spinal cord	40	Uncertain	Present
18	Syphilitic pachymeningitis	30	Uncertain	Present
19	Arachnoid adhesions and atrophy of the cord	55	Uncertain	Present unilaterally
20	Adhesive arachnoiditis	100	Concise C_8	Present

TABLE 3.—*Normal Appearance of Cord or "Intrinsic Cord Disease"*

No.	Pathologic Diagnosis	Protein Content, Mg. per 100 Cc.	Sensory Level	Sacral Anesthesia
7	Normal cord	+	Concise D_{12}	Present
8	Normal cord	40	None (uncertain motor level)	Absent
9	Normal cord	55	Uncertain D_8	Present
10	Normal cord	40	Uncertain C_8-D_1	Absent
11	Atrophy of cord	35	Uncertain C_8	
12	Hematomyelia	65	Concise D_{10}	Absent
13	Myeloradiculoneuritis	60	Uncertain C_8	Absent
14	Normal cord	40	Concise L_2	Present
15	Acute myelitis	70	Concise D_6	Present
16	Normal cord	90	Concise C_8	Present

TABLE 4.—*Protein Content of Spinal Fluid*

	Cases in Which Content Was Normal to 45 Mg. per 100 Cc.	Cases in Which Content Was Elevated		
		Slightly 55-65 Mg. per 100 Cc.	Moderately 70-95 Mg. per 100 Cc.	Greatly 100-220 Mg. per 100 Cc.
Localized compressing lesion	2	..	..	4
Normal appearance of cord or "intrinsic cord disease"	5	3	2	..
Arachnoiditis	2	1	..	1

Sachs and Glaser [5] reported occasional improvement after exploratory laminectomy on patients showing no pathologic changes ordinarily considered to be improved by the surgeon. They found that 8 of 33 patients of this type showed clinical recovery.

An attempt was made to correlate the operative findings with some of the more commonly emphasized physical and laboratory signs, namely the protein content of the spinal fluid, the presence or the absence of sacral anesthesia, and the sharpness of definition of the sensory level.

With regard to the values for protein, our study revealed that of the 6 cord compressing lesions 4 had produced a very high protein content in the spinal fluid and that 2, an extradural neoplasm and a herniated disk, were accompanied by normal protein values. As to the 4 cases showing meningeal adhesions, the protein content was within normal limits in 2, slightly elevated in 1 and definitely increased in 1. Of the 10 patients with an apparently normal cord or with intrinsic or other nonoperable disease of the cord, 2 had moderately elevated and 3 slightly elevated protein values, and the remainder had values within normal limits. Although realizing the limitations of so small a series, we noted (table 4) that only the operable lesions in this group produced the very high protein levels.

TABLE 5.—*Sacral Anesthesia*

	Cases in Which Anesthesia Was		
	Present	Absent	Questionable
Localized compressing lesion..	4	1	1
Normal appearance of cord or "intrinsic cord disease"	5	4	1 (unreported)
Arachnoiditis.....	4	0	0

TABLE 6.—*Definition of the Level*

	Cases in Which Level Was	
	Concise	Uncertain
Localized compressing lesion.....	3	3
Normal appearance of cord or "intrinsic cord disease"	5	5
Arachnoiditis.....	1	3

With regard to the other correlations attempted, no such clearly defined trends are apparent. Sacral "saddle" anesthesia (table 5) was present with sufficient frequency in every one of the categories to be of little significance in the differential diagnosis. Again the cases were too few to support any definite conclusions. Similarly with the preciseness of the sensory level (table 6) each group had an equal distribution of patients with concise and patients with uncertain levels.

CONCLUSION

It is felt that this summation indicates the advisability of surgical exploration in a patient suspected of having a "level lesion" of the spinal cord despite the absence of spinal fluid block.

It is also seen that a high protein content of the spinal fluid (above 100 mg. per hundred cubic centimeters) in such a patient is strongly suggestive of a localized compressing lesion, whereas the presence or the absence of sacral "saddle" anesthesia and the preciseness or the vagueness of the sensory level may not be of great significance in the diagnosis.

2-ANILINOETHANOL—AN INDUSTRIAL HAZARD

PRODUCTION OF METHEMOGLOBINEMIA

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That aniline derivatives produce methemoglobinemia has been shown repeatedly by many investigators. The mechanism of this reaction has been reviewed by Bernheim.[1] One molecule of aniline combines with two of hemoglobin to give two molecules of methemoglobin and one of p-hydroxyaniline. To our knowledge it has not been shown that 2-anilinoethanol causes formation of methemoglobin but from analogy this might be expected to occur in the course of its metabolism in the body. That such is the case was suspected when 2 men in a commercial plant developed cyanosis while using this compound under the name "phenyl ethanolamine." No immediate means of testing the blood for methemoglobin was available in the local hospital, so that the etiologic agent of the cyanosis could not be definitely established. Both men rapidly recovered.

REPORT OF CASES

CASE 1.—S. R., a Lithuanian aged 52, began work at 7 a. m. on Nov. 27, 1942 washing bearings with "mineral seal oil" containing 0.5 per cent "phenyl ethanolamine." He had been working for six years at the same task using the mineral seal oil, but on this day a sample admixed with 2-anilinoethanol was employed for the first time. At 2 p. m. a fellow worker noted that there was a bluish discoloration of the patient's lips and of the lobes of his ears. He continued at work until 4 p. m., at which time he had a mild occipital headache and a "feeling" that he was "taking a cold." He took two compound cathartic pills and continued at work until 5:30 p. m., at which time he quit work and went to see a physician. Although not acutely ill, he was sent to a hospital because of the cyanosis. He was put to bed and oxygen administered. The cyanosis progressed until about 11 p. m., then gradually subsided, and had entirely disappeared twenty-four hours after admission.

Physical examination gave essentially negative results except for the profound cyanosis involving both skin and mucous membranes. The blood was a deep brownish blue, and the urine was dark. Routine studies revealed no abnormalities of the urine or the blood. Recovery was rapid and complete.

CASE 2.—M. C. Q., a white married man aged 53, began working at 12 noon on Nov. 27, 1942 with the same solution as described in the preceding case. At 6 p. m. a fellow worker noted that the patient's lips, nose and ears were blue. The patient was asymptomatic except for slight dizziness and mild pains in the muscles of his legs. When he reported to the first aid nurse at 8:45 p. m. it was necessary for him to sit upright to breathe. He arrived at the hospital at 10 p. m., at which time oxygen was administered. His cyanosis progressed until 1 a. m. and then receded steadily until it was entirely gone twenty-four hours after he entered the hospital. Physical examination revealed no abnormalities other than cyanosis and dyspnea. The urine was normal. The blood was dark brownish blue but otherwise showed no abnormalities.

From the Laboratories of Pharmacology and Toxicology, Yale University School of Medicine.

Dr. Albert S. Gray and Dr. Crit Pharris of the Connecticut State Department of Health, Bureau of Industrial Hygiene, assisted in obtaining the chemicals studied. Technical assistance was given by Miss Ruth Jaffe and Mr. Vincent Tucker. The manufacturer cooperated by supplying immediately samples of the commercial material and by preparing specially purified material for further study.

1. Bernheim, Frederick: The Interaction of Drugs and Cell Catalysts, Minneapolis, Burgess Publishing Company, 1942.

DESCRIPTION OF THE INDUSTRIAL PROCEDURE INVOLVED

The manufacturing operation in which the 2 men were engaged was the washing of assembled roller bearings by holding them in a stream of mineral seal oil containing 0.5 per cent by volume of 2-anilinoethanol, called "phenyl ethanolamine." This solution was being sprayed through nozzles at a pressure of 80 pounds per square inch. The washing bath was so constructed that the spray stream was directed away from the operator and against the back wall and down into the distribution system. There was good ventilation of the bath to remove spray mists; in fact, it was impossible to see any mist around the booth while it was being used. This cleaning operation had been carried out for a number of years with mineral seal oil as the basic ingredient of the spray. No trouble had been experienced until 2-anilinoethanol was added. The casualties occurred on the first day that the cleaning mixture was altered. The relative importance of cutaneous and pulmonary ports of entry requires further study.

Observations on Acute Toxicity

Toxicity of 2-Anilinoethanol Administered Undiluted to Normal Dogs

Dog	Dose, Mg. per Kg.	Route of Administration	Recovered	Died	Time of Death
1	108	Intravenous	+		
2, 3, 4	110	Intravenous	+		
5	140	Intravenous	+		
6	165	Intravenous	..	+	12 hr.
7	176	Intravenous	+		
8	220	Intravenous	..	+	1 hr.
9	237	Intravenous	..	+	6 min.
10	63	Oral	+		
11	440	Oral	+		
12, 13	110	Subcutaneous	+		
14	220	Subcutaneous	+		
15	220	Subcutaneous	..	+	3 days

Toxicity of 2-Anilinoethanol Administered Intraperitoneally to White Mice

Number of Mice					
5	66	Intraperitoneal	5	0	
5	176	Intraperitoneal	4	1	
15	220	Intraperitoneal	10	5	
20	275	Intraperitoneal	11	9	
15	330	Intraperitoneal	2	13	
25	385	Intraperitoneal	6	19	
10	440	Intraperitoneal	1	9	

Toxicity of 2-Anilinoethanol Administered to Rabbits

Number of Rabbits					
1	16	Intravenous	1		
1	22	Intravenous	1		
1	33	Intravenous	1		
1	44	Intravenous	..	1	6 hr.
2	55	Intravenous	..	1	24 hr.
1	82	Intravenous	1	1	24 hr.
1	83	Intravenous	..	1	12 hr.

TOXICOLOGIC INVESTIGATION

Two samples of 2-anilinoethanol were supplied to us for toxicologic study: one a technical grade of 2-anilinoethanol, the same that was used by the industrial workers, and the other a pure sample kindly prepared by the manufacturer.

Normal adult dogs fed on commercial chow were subjected to 2-anilinoethanol by various routes. Methemoglobin was determined by the method of Evelyn and Malloy [2] with a Klett-Summerson photoelectric colorimeter. Acute toxicity experiments were carried out on 15 dogs, 8 rabbits and 95 mice, in addition to chronic toxicity experiments on 11 dogs.

Pathologic studies, both gross and microscopic, were made on those subjected to chronic poisoning.

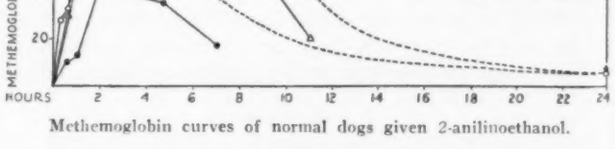
2. Evelyn, K. A., and Malloy, H. T.: Microdetermination of Oxyhemoglobin, Methemoglobin and Sulfhemoglobin in a Single Sample of Blood, J. Biol. Chem. **126**: 665 (Sept.) 1938.

Studies of Toxicity.—The 2-anilinoethanol was dissolved in a dilute solution of ethyl alcohol for injection into mice. The undiluted drug was used in dogs and rabbits. The rate of intravenous administration was slow because rapid injection was known to cause respiratory arrest and immediate death. Emesis uniformly followed the administration of the larger doses to dogs within the first ten minutes. No signs of immediate toxicity were noted in rabbits and mice except for transitory stupor and ataxia during the first three to ten minutes. Usually if death was not immediate it was delayed for six to twelve hours.

(*a*) Effect on Blood Cells: Studies were made of the blood of 4 dogs after administration of 2-anilinoethanol. Two dogs treated repeatedly at one to two day intervals with 110 mg. per kilogram injected subcutaneously showed no change of the granulocytes or mononuclear white cells, either in numbers or in structure. In one of these animals the hemoglobin dropped from 14 Gm. to 9 Gm. per hundred cubic centimeters of blood in twenty-one days and in the other animal from 12 Gm. to 6.5 Gm. per hundred cubic centimeters in a ten day period. By the twenty-seventh day the hemoglobin of the first dog had returned to 10.5 Gm. and that of the second to 11 Gm. per hundred cubic centimeters on the twenty-fourth day.

In a dog given 220 mg. per kilogram subcutaneously at frequent intervals (one to two days) severe anemia developed (7.5 Gm. hemoglobin per hundred cubic centimeters of blood) by the seventeenth day. The fourth animal, which died four days after treatment, showed a fall in hemoglobin from 11 to 8 Gm. per hundred cubic centimeters and of the erythrocyte count from 4.8 to 2.5 million per cubic millimeter shortly before death. The red cell count fell uniformly in all 4 dogs, but only the last of these animals showed a drop corresponding to the low hemoglobin. There was a slight increase in the number of nucleated red cells and in the polychromatophil red cells. No increase in reticulocytes could be demonstrated on the fifteenth day.

(*b*) Production of Methemoglobin: Four curves are shown in the accompanying chart to illustrate the concentration of methemoglobin in the blood at various times following the oral or the intravenous administration of the crude 2-anilinoethanol to dogs. By either route of administration the peak of methemoglobin was reached in from two to four hours. The rise, however, was delayed somewhat when the oral route was used.



Methemoglobin curves of normal dogs given 2-anilinoethanol.

In 2 other animals when 2 cc. of drug was spread over an area of depilated skin 15 by 15 cm. methemoglobin rose only to 6 and 12 per cent respectively.

A 3.1 Kg. dog was allowed to breathe the atmosphere from a 500 cc. beaker held over its mouth and nose. Into this beaker was sprayed 2 cc. of 2-anilinoethanol in 10 cc. of ethyl ether. Cardiac blood samples revealed methemoglobin concentrations of 20.8 and 48 per cent at intervals of one hour fifteen minutes and four hours forty-five minutes respectively.

In the rabbits and the mice negligible amounts of methemoglobin were formed when 2-anilinoethanol was injected intravenously. We are informed, however, by the manufacturer that recent observations indicate that rats are susceptible.

Blood from treated dogs when examined by a hand spectroscope showed spectral bands corresponding with those of methemoglobin prepared in vitro by adding potassium ferricyanide to normal blood.

The experiments described were conducted with the commercial product as marketed. Methemoglobin curves similar to those shown in the chart, however, were obtained when purified 2-anilinoethanol was employed. It is evident, therefore, that this compound is the agent producing the methemoglobinemia, and not a contaminant present in the crude material.

Chemical Tests.—Alles [3] has discussed the formulas of two phenylethanolamines, i. e., α-phenyl, β-aminoethanol ($C_6H_5.CHOH.CH_2NH_2$) and β-phenyl, β-aminoethanol ($CH_2OH.C(C_6H_5)HNH_2$). Either of these compounds is a primary amine and should react with nitrous acid to yield elementary gaseous nitrogen. When this test was applied to the substance under discussion, however, no gas was evolved. Furthermore, a reddish oil was formed, insoluble in water at p_H 2.5 under conditions which readily dissolved the original so-called phenyl ethanolamine. In short, this substance did not behave like a primary amine. Furthermore, on boiling with chloroform and potassium hydroxide the compound gave no disagreeable isonitrile odor. The most likely interpretation, therefore, is that the substance [4] is a secondary amine, i. e., 2-anilinoethanol ($C_6H_5NH.CH_2.CH_2OH$). It is a colorless liquid with a density of 1.114⅘ Gm. per cubic centimeter, boiling at 286 C. It is only slightly soluble in water but is soluble in alcohol. A comparison of the properties of the substance under discussion showed good agreement with the anticipated findings.

COMMENT

It is hoped that the reporting of these cases will call the attention of physicians in industrial practice to the necessity of critically investigating the structure and properties of new compounds. The name phenyl ethanolamine would naturally identify the compound in question as an epinephrine-like substance [3] and therefore is quite misleading. If the compound had been named, however, as an aniline derivative or if the chemical formula had been placed on the label, an error of this nature should not have occurred.

On discussing the problem with Dr. G. A. Alles, he kindly consented to our quoting the following:

> It is unfortunate that the term phenyl ethanolamine has come to be applied commercially to ethanolaniline or 2-anilinoethanol. The term ethanolaniline is far more suitable to indicate the special chemical properties of the compound among types of amino-alcohols now manufactured and used industrially. From the standpoint of its toxicology also the name ethanolaniline would readily bring to the minds of those with elementary pharmacological knowledge its potential toxicities in industrial use. Certainly if the nomenclature of phenyl ethanolamine be persisted in, the compound should always be designated as N-phenyl ethanolamine to distinguish this compound from the earlier described and used α- and β-phenyl ethanolamines.
>
> This problem of nomenclature arises from the long established custom of giving greater importance to oxygen than nitrogen in the systematic naming of organic compounds. This emphasis is particularly unfortunate in the group under consideration, because the amino character of these compounds so completely dominates their properties for industrial use and determines their characteristic physiological activities.

3. Alles, G. A.: Comparative Action of Phenyl Ethanolamine, J. Pharmacol. & Exper. Therap. **32**: 121 (June) 1927.
4. Described as compound 3599 in the Handbook of Chemistry and Physics, ed. 25, Chemical Rubber Publishing Company, 1941-1942, p. 758.

CONCLUSIONS

An oil mixture containing 2-anilinoethanol (improperly named "phenyl ethanolamine") caused cyanosis in 2 factory employees using it. This substance likewise produced cyanosis in dogs but not in rabbits and mice. As established in dogs, the presence of methemoglobinemia is the cause of the cyanosis.

Because this problem of toxicity is likely to arise repeatedly as new industrial uses are found for the many related chemical substances which will be available, this example has been cited.

The hazard of such intoxication of human beings might be mitigated if special care was taken that similar substances are named as aniline derivatives. At least a cautionary label should be applied to warn industrial safety committees of the danger.

333 Cedar Street.

Clinical Notes, Suggestions and New Instruments

FAILURE OF SULFAGUANIDINE THERAPY IN THE CONTROL OF AN INSTITUTIONAL TYPHOID CARRIER

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REASON FOR ATTEMPTING CHEMOTHERAPEUTIC CONTROL

In spite of routine typhoid inoculation of all patients and personnel, 4 cases of typhoid occurred in the Delaware State Hospital during the period 1934-1942. This is a hospital for nervous and mental diseases, its annual average census ranging from 1,180 to 1,200 patients. The entire population of the hospital had been immunized against typhoid in 1933, when 4 cases occurred in Ward B East, routine admission immunization being instituted at the same time. All immunizations were the usual three subcutaneous injections of a standard triple typhoid vaccine.

In 1933 typhoid developed in a graduate nurse on duty in Ward B East. In 1937 a male patient contracted the disease. He did not live in Ward B East, which is a women's ward, but did help in the hospital laundry serving that ward. In 1938 a female attendant in Ward B East came down with typhoid, and on Oct. 2, 1942 a woman patient was found to have the disease. She had been admitted to the hospital in March 1941, at which time she received the usual admission immunization against typhoid. She had been a patient in Ward B East since April 1942. Being feebleminded, in a state of advanced mental deterioration, extremely confused and untidy, she never left the ward for social activities. For six months prior to the onset of her typhoid she had no visitors and had not been exposed to any outside contacts whatever. She died on October 7, autopsy revealing Pick's disease as well as typhoid.

It seemed probable that the source of infection of this patient would be found in the ward itself. A systematic search for a carrier was therefore instituted by one of us (T. P. B.) beginning with those persons, both patients and staff, who were known to have had some connection with the ward at each of the various times when typhoid infection occurred. Eberthella

typhi was reported from 3 successive specimens of feces a week apart submitted by E. A., a patient, while specimens of feces and urine from the remaining 74 patients and staff in the ward were all negative. E. A., a white woman aged 74, schizophrenic, was 1 of 2 surviving patients who had typhoid in 1933. Release specimens at that time were negative. During the ten year period since then she had been confined continuously to Ward B East, using the common facilities of the ward. However, she had never helped with food handling, she was very clean and she was asocially inclined, staying away from other patients and never mingling with the untidy.

Immediately on discovery that she was a carrier, she was isolated in a separate room in the ward under all sanitary precautions, and all the patients and staff of the ward were reimmunized. However, isolation facilities were not really satisfactory, and the carrier's mental condition made it impossible to expect cooperation from her at any time. As for the other patients in this ward, the majority were mentally confused and untidy as to their habits. Fecal contamination was common with many of them. It was essential to give them as much protection from the carrier as possible. The carrier's physical condition made surgical attack on her infection impracticable. Under these circumstances it seemed wise to try sulfonamide treatment in an attempt to cure her.

TREATMENT WITH SULFAGUANIDINE

Although the sulfonamides are reported to have no favorable effect on the disease typhoid and their use is ordinarily confined to treatment of spreading infections, favorable results with sulfaguanidine have been reported in the treatment of dysentery carriers and in blood stream infections with gram-negative intestinal organisms, while Hoagland [1] reports success in treatment of 2 out of 3 typhoid carriers with sulfaguanidine. Accordingly it was decided by one of us (F. A. F.) to institute sulfaguanidine therapy.

For some years the carrier had shown a rather constant although mild albuminuria, and granular casts had been found on numerous occasions. Urine of specific gravity ranging from 1.003 to 1.024 was obtained on a dilution test and a specific gravity of 1.030 on concentration test. On a phenolsulfonphthalein test 12 per cent of the dye was recovered at 70 minutes after injection and 35 per cent 130 minutes after injection. In view of the fact that the carrier had had some kidney impairment, it seemed wise to start with a small initial dose. Treatment was begun on Dec. 21, 1942 with 6 Gm. a day of sulfaguanidine by mouth. The dosage was increased to 12 Gm. a day on the twelfth day, January 1, and to 18 Gm. a day on the fifteenth day, January 5, this last dose being nearly the maximum of 20 Gm. a day advocated by Hoagland in cases in which smaller doses are ineffectual. There had been increasing loss of appetite during the administration of sulfaguanidine, and the patient had seemed to grow more apathetic but had not been seriously incapacitated. When the dose was increased to 18 Gm. a day, she became weak, mildly cyanotic, began to vomit and refused all food. On January 7 and 8 she was given 1,000 cc. a day of saline solution with 5 per cent dextrose solution intravenously. Because of her schizophrenic mental state nothing could be learned as to subjective symptoms, but general malaise was obviously present to a pronounced degree. The temperature, which had been normal throughout the treatment period, rose on January 7 to 99 F. and on January 8 to 102 F. Treatment with sulfaguanidine was discontinued on January 8. Two days afterward the temperature fell to a normal level. Complete blood counts during the course of treatment were all within normal limits. Treatment was maintained at the 18 Gm. level for a total of four days. The carrier thus received a total of 174 Gm. of sulfaguanidine. Her carrier condition at no time showed even the slightest effect from treatment. Specimens of feces were found positive on Dec. 12 and 28, 1942, Jan. 9 and 12 and April 20, 1943. Within a few days after sulfaguanidine treatment was discontinued the patient recovered her usual health. No delayed reaction to the drug had appeared by June 29, 1943.

1. Hoagland, Robert J.: The Typhoid Carrier State Treated with Sulfaguanidine, J. A. M. A. **120:** 1211 (Dec. 12) 1942; correction, **121:** 365 (Jan. 30) 1943.

SUMMARY

A chronic typhoid carrier discovered in a mental hospital continued to discharge typhoid organisms in her feces while receiving sulfaguanidine by mouth at the rate of 6 to 18 Gm. a day. She was still a carrier after eighteen days of treatment in which she received a total of 174 Gm. of sulfaguanidine.

SUCCESSFUL SURGICAL TREATMENT OF MULTIPLE ATRESIAS (APLASIAS) OF THE SMALL INTESTINE IN A PREMATURE INFANT

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Remarkable progress has been observed in the treatment of intestinal atresias during the past fifteen years. Prior to 1927 only 4 cases of atresia of the intestine had been successfully treated by surgery.[1] When Webb and Wangensteen [2] in 1931 reviewed some 500 reported cases of intestinal atresia, only 9 survivals could be found. Ten years later Cohen [3] estimated that another 150 cases had been reported but that there were now over 50 instances of successful surgical treatment. It is difficult to estimate the operative survival following early and adequate surgical treatment as most cases have been reported individually or, at best, in small groups, owing to the comparative rarity of this condition. Ladd,[4] however, has recently published the results of 49 cases of atresia of the small intestine treated in his clinic. In this group there were 7 survivals (14 per cent).

Multiple intestinal atresias are infrequent in their occurrence. Davis and Poynter [5] found 67 instances of multiple lesions in 392 cases of intestinal atresia collected from the literature, an incidence of 15 per cent. In Ladd's [4] series there were 3 cases, or 5 per cent of the total group. Glover [6] in 1942 estimated there had been fewer than 100 cases of multiple intestinal atresia reported. Very few of these cases have been treated surgically. To the best of our knowledge there have been no survivals. It is our purpose in this paper to report what we believe to be the first successful surgical treatment of a case of multiple atresias of the small intestine.

REPORT OF CASE

M. G., a white boy aged 36 hours, admitted to the Pediatric Service on Aug. 28, 1942, had been born at a Bayonne (N. J.) hospital and referred to us with a diagnosis of congenital intestinal obstruction.

The pregnancy had been entirely normal until labor started one month prematurely. The latter was of short duration and followed by an uneventful delivery. Breathing started spontaneously and there was no evidence of birth injury. The weight at birth was 4 pounds 8 ounces (2,041 Gm.). He had vomited everything fed by mouth up to the time of admission. Absence of stools since birth had been noted.

The infant was well developed and nourished, considering his prematurity. The skin was decidedly jaundiced but possessed good turgor. The scleras were icteric. The abdomen was soft and without palpable masses. Borborygmi were not audible and peristaltic waves were not seen. The remainder of the physical examination was essentially negative. The

From the Pediatric and Surgical Services, St. Luke's Hospital.

Read in part before the Section on Pediatrics of the New York Academy of Medicine, May 13, 1943.

1. Fockens, P.: Ein operativgeheilter Fall von kongenitaler Dünndarmatresie, Zentralbl. f. Chir. **38:** 532, 1911. Ernst, N. P.: A Case of Congenital Atresia of the Duodenum Treated Successfully by Operation, Brit. M. J. **1:** 644, 1916. Richter, H. M.: Surgery of the Gastrointestinal Tract in Children, in Abt, I. A.: Pediatrics, Philadelphia, W. B. Saunders Company, 1924, vol. 3, p. 512. Bolling, R. W.: Complete Congenital Obstruction of the Duodenum: Duodenojejunostomy at Nine Days of Age, Ann. Surg. **83:** 543 (April) 1926.

2. Webb, C. H., and Wangensteen, O. H.: Congenital Intestinal Atresia, Am. J. Dis. Child. **41:** 262 (Feb.) 1931.

3. Cohen, Philip: Congenital Intestinal Obstruction, Am. J. Dis. Child. **61:** 135 (Jan.) 1941.

4. Ladd, W. E., and Gross, R. E.: Abdominal Surgery of Infancy and Childhood, Philadelphia, W. B. Saunders Company, 1941, p. 25.

5. Davis, D. L., and Poynter, C. W. M.: Congenital Occlusions of the Intestines, Surg., Gynec. & Obst. **34:** 35 (Jan.) 1922.

6. Glover, D. M.; Smith, Simmons, and Eitzen, Oliver: Multiple Atresia of the Small Intestine, Ann. Surg. **116:** 337 (Sept.) 1942.

infant weighed 4 pounds 4 ounces (1,928 Gm.) and measured 18 inches (46 cm.) in length.

Nonprojectile vomiting occurred shortly after the infant was fed some dextrose solution. The vomitus was bile stained and without fecal odor. Fluoroscopic and roentgenographic examination revealed moderate gaseous distention of the stomach and duodenum, which ended abruptly in the region of the duodenojejunal flexure (fig. 1). The remainder of the alimentary tract was entirely devoid of gas. Barium was not used in these studies. Liberal amounts of parenteral fluids were administered during the next twenty-four hours. Vitamin K was injected intramuscularly. The stomach was lavaged clear immediately preceding the operative procedure.

The operation was performed by one of us (F. S. W.) on August 29. With the patient under open drop ether anesthesia, a 6 cm. upper right rectus incision was made. A dilated loop of small intestine bulged into the wound after the peritoneal cavity was opened. Further examination revealed the stomach, duodenum and proximal jejunum to be dilated with some thickening of the intestinal wall in these regions (fig. 2). Approximately 10 cm. below the ligament of Treitz the jejunum ended blindly. The next portion of bowel was an isolated loop approximately 4 cm. in length. This was followed by a section of bowel 17 cm. in length, which also ended blindly at either end. Just proximal to its distal end there was a bulging caused by inspissated meconium (fig. 3). On the antimesenteric side of the intestine in this area there was pronounced thinning of its musculature, and a small point of perforation was visualized. Both these blind loops of intestine were supported by individual mesenteries. They were completely separated from each other and from the other portions of the bowel. At the proximal end of the remaining loops of small intestine there were two areas of stenosis. Distal to these stenotic areas no further evidence of atresia or stenosis was found in the small or large bowel. The intestine in these regions was completely collapsed but appeared to be patent.

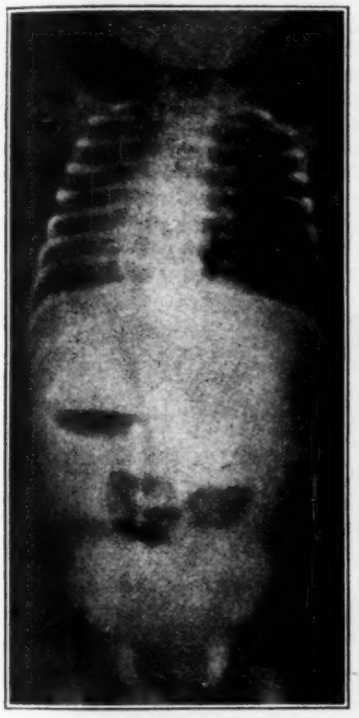


Fig. 1.—Plain flat film of the abdomen. Infant was held in an upside down position. The two smaller shadows on the left side of the abdomen are due to air present in the stomach. The larger curved shadow in the center of the abdomen represents air in the small intestine. The smaller end of this shadow is just above the point of obstruction. Note the absence of air in the remainder of the film.

The small, uncomplicated, isolated loop of jejunum was left undisturbed. The 17 cm. loop of jejunum containing the perforation was resected (fig. 3). Liquid petrolatum was then injected into the lumen of the uninvolved distal small intestine and seen to pass readily through the remaining portions of the small bowel. This was done to dilate the distal intestine preparatory to making the anastomosis. While this procedure was being carried out, the mesentery of the proximal portion of the distal small intestine was torn loose for a distance of 3 cm. This necessitated resection of this portion of the small intestine, which procedure was carried out just below the stenotic areas. The distal stump was cauterized with the actual cautery, inverted and closed with a number 00 chromic catgut suture passed on an atraumatic needle. Bleeding vessels in the mesentery were tied with number 00000 chromic catgut sutures. This end of the small bowel was then sutured side to side with the upper dilated jejunum by continuous sutures of number 00 chromic catgut passed on atraumatic needles. The upper and lower loops were then opened. The anastomosis was made by a continuous stitch through the entire intestinal wall posteriorly. The suture was locked at either angle and

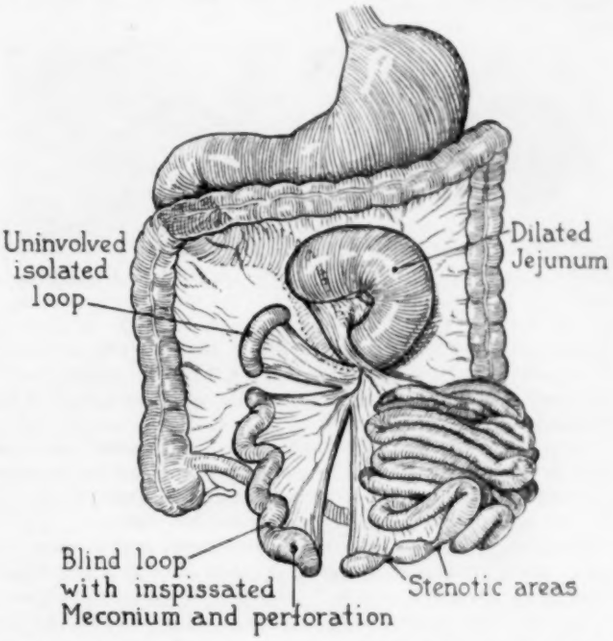


Fig. 2.—Diagrammatic sketch of the abdominal findings at the time of operation.

brought anteriorly as a Connell stitch. A number 00 chromic catgut suture on an atraumatic needle was used for this procedure. The anastomosis was reinforced anteriorly with a number 00000 chromic catgut suture. The peritoneum was closed with a continuous suture of number 000 chromic catgut.

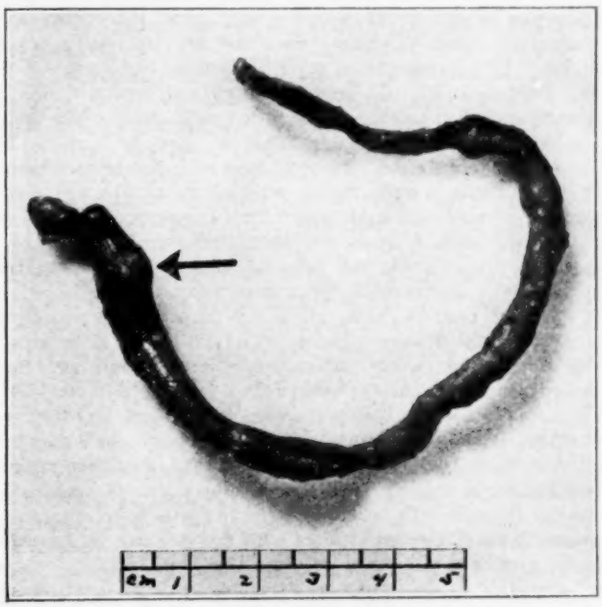


Fig. 3.—The 17 centimeter isolated loop of jejunum which was resected because of perforation. Arrow indicates point of perforation.

Closure of the anterior rectus sheath was carried out in a similar manner. Retention sutures of number 1 silk were placed through the anterior rectus sheath. A continuous number c silk suture was used for the skin closure. The retention sutures were then tied. The duration of the operative

procedure was two hours. The patient was returned to the nursery in good condition.

The infant was placed immediately in a heated bed. Nothing was given by mouth during the first three postoperative days. Parenteral fluids were administered in liberal amounts. Small transfusions of plasma or whole blood were given almost daily. Vitamins C and K were injected intramuscularly. The stomach was lavaged at frequent intervals. The patient's general

Fig. 4.—Appearance of the patient at the end of the third postoperative week.

condition was excellent. The turgor of the skin was good and the jaundice diminished in intensity. Slight regurgitation occurred occasionally, but there was no frank vomiting. The abdomen was soft to palpation.

At the end of the third postoperative day, small amounts of 5 per cent dextrose in saline solution were given by gavage. A small amount of brown mucoid material was passed by rectum approximately ninety hours after the operation. Two hours later a small amount of yellowish-green mucoid material was expelled rectally, indicating patency of the anastomosis. The infant weighed 4 pounds 7 ounces (2,013 Gm.) at this time.

On the fifth postoperative day the infant was started on gavage feedings of sterile water every three hours, followed the next hour by a formula composed of breast milk and barley water. The amount of the formula given was increased every four feedings. Two days later the infant developed a moderate generalized edema. The skin and retention sutures had cut through and were loose. The edges of the wound had separated, but the anterior rectus sheath remained firm. The wound was closed by means of an adhesive dressing. The infant's weight was 4 pounds 13 ounces (2,183 Gm.). The amounts of the parenteral fluids were reduced until the edema had disappeared. Bottle feedings were started and readily taken on the eighth postoperative day. The stools had increased to six to seven a day, had become watery and contained mucus as compared to the yellow pasty breast milk stools which were present during the first few days of these feedings. The diarrhea continued even after the breast milk had been lactified. Parenteral fluids were increased again on the twelfth postoperative day when evidence of dehydration reappeared.

A protein milk formula was started on the thirteenth postoperative day. During the first five days of this feeding the infant lost 7 ounces (198 Gm.) in weight. It was observed at this time that the white blood cell count had increased up to 37,000 from its former range of 14,000-17,000. The stools had decreased in number and were of firmer consistency but chalky white. Urine specimens gave positive tests for bile. The jaundice, which had practically disappeared, increased in intensity. The infant appeared much weaker and required continuous external heat to maintain a normal body temperature. His breathing became rapid and shallow, and he was occasionally cyanotic. At one time he showed a definite carpopedal spasm. Sulfadiazine was started with the idea that this setback might have been of a septic nature. The white blood cell count fell promptly to its former levels following the administration of this drug. Calcium gluconate was injected intramuscularly and a preparation of crystalline vitamin D_2 was added to the formula. Bile salts and vitamin K were administered because of the biliary obstruction. Most of the feedings had to be given by gavage during this period.

By the end of the third postoperative week the infant had made considerable improvement (fig. 4). Whole powdered milk was gradually substituted in the formula for corresponding amounts of the protein milk. The infant became stronger and was able to take feedings by bottle once more. The stools were better digested and numbered from three to five a day. They appeared to contain bile, but a positive laboratory test for this substance could not be obtained. The jaundice had decreased somewhat in intensity, but bile was still detectable in the urine. The bile salts, calcium gluconate, sulfadiazine and vitamin K were discontinued. There was a steady gain in weight to 5 pounds 6 ounces (2,438 Gm.) on the fortieth postoperative day.

During the next one and a half weeks there was an increase in the number of stools to six to seven a day. They became loose and were fatty in consistency. Parenteral fluids were given intensively but failed to stop a weight loss to 4 pounds 15 ounces (2,240 Gm.). A protein milk formula was again instituted. This, along with the administration of bile salts, brought about control of the diarrhea.

From this point the patient progressed very satisfactorily. Whole powdered milk eventually replaced protein milk completely in the formula. Lactose was gradually added to the formula and was tolerated well. Cereal was started one week before discharge from the hospital. Bile salts were discontinued after they had been given for a period of four weeks. Jaundice gradually decreased and had disappeared entirely by the end of the second postoperative month. The stools became small, were normal in consistency and contained bile. However, they numbered four to five daily until the last two hospital weeks, when they decreased to two a day. The last positive test for bile in the urine occurred on the sixty-third postoperative day. There was a steady gain in weight up to 7 pounds 4 ounces (3,288 Gm.) at the time of his discharge on

Fig. 5.—Appearance of the patient at the age of 10 months.

the one hundred and ninth hospital day. He had developed a diastasis recti at the operative site, which was controlled by an abdominal binder. Otherwise the discharge examination was essentially normal.

The patient was seen again at the age of 6½ months. At this time he was in excellent health and weighed 15¼ pounds (6,917 Gm.). He had had varicella during the preceding month. There had been no evidence of dietary intolerance. No signs or symptoms referable to the gastrointestinal tract had

been observed. The remainder of the physical examination was negative except for the diastasis recti. When seen on June 29, 1943 at the age of 10 months, the patient appeared in excellent health (figure 5). He had recently undergone an attack of rubeola without difficulty. Examination was again negative except for the weakness of the abdominal wall due to the diastasis recti. The feeding and developmental history was within normal limits. He now weighed 18 pounds (8.2 Kg.) and measured 30½ inches (76 cm.) in length.

COMMENT

Since several reviews on intestinal atresia had appeared in the recent literature,[7] discussion will be limited to those factors believed important in the successful outcome of the present case.

The first essential in increasing the number of successfully treated cases of intestinal atresia rests in its early recognition clinically. While some of these infants have lived as long as three weeks without surgical treatment, the average age at death is 6 days.[5] Therefore the obstetrician, who is most likely to come in contact with these cases first, should be well acquainted with its early clinical manifestations. Persistent vomiting of all feedings from birth along with the absence of stools should always suggest the possibility of intestinal atresia. Other clinical findings vary with the location of the lesion and these are well discussed in the aforementioned reviews. The early recognition of congenital intestinal obstruction in the present case permitted us to operate while the infant was still in an excellent state of hydration and nutrition.

Roentgenology is of great aid in the diagnosis and localization of intestinal atresia. Adequate information may be obtained from a plain flat film of the abdomen.[8] Sufficient contrast material is provided by the large amounts of air swallowed by newborn infants. In the presence of intestinal atresia the swallowed air is unable to progress beyond the point of the obstruction. The dilated outline of the portion of the intestine above the atresia and the absence of gas in the distal bowel are usually clearly demarcated. The use of a barium contrast meal, in most instances, is unnecessary. It has been stressed that such studies may be detrimental.[9] Barium can easily plug and obstruct the undilated portion of intestine beyond the atresia, once the anastomosis has been made. Another objection is that the inclusion of barium within the anastomosis would delay or even prevent its healing. This point needs emphasis, as cases in which barium studies have been done continue to appear in the literature and in our own personal experience.

The need for adequate maintenance of fluids and electrolytes in infant surgery has become well recognized in recent years. It has been rightly emphasized that operation should be delayed in the presence of dehydration until restoration of tissue fluids and electrolytes has been accomplished.[10] The recognition of this fact has materially influenced the operative successes in the newborn period. That infants in a state of good nutrition and hydration can withstand major surgical procedures of long duration is amply demonstrated in the present case. The administration of parenteral fluids postoperatively in the treatment of cases of atresia is especially important. Oral feedings are not given in the immediate postoperative period in order to permit healing of the anastomosis without enteric irritation. Thus the entire maintenance of tissue fluids and electrolytes is dependent on their parenteral administration.

Recent investigations[11] have revealed an elevated prothrombin clotting time in the newborn period, particularly in premature infants, even when clinical evidence of hemorrhagic disease is lacking. Many studies have revealed the efficacy of vitamin K in the therapy of this bleeding tendency.[12] Patients undergoing any operative procedure in the neonatal period should receive adequate parenteral administration of vitamin K preoperatively and for a short period in the postoperative course as a routine procedure.

There are recorded instances in which an anastomosis has been performed for what, at operation, appeared to be a single atresia to find, at necropsy, that multiple atretic lesions had been present.[6] At the time of the operation, therefore, it is essential to explore the entire intestinal tract completely. In some cases the extent of the abnormalities will preclude any operative attempt. However, the successful treatment of multiple lesions, illustrated in the present case, will be possible in certain instances.

There is general agreement at the present time that the operation of choice is a side to side anastomosis.[4] The small distal intestine precludes the use of an end to end anastomotic procedure. Except for a few cases, enterostomy has been invariably fatal. Ladd has stressed a minimal amount of surgery at the time of the primary operation. He advises leaving uncomplicated isolated loops intact. Their removal at a later date is recommended because of possible cyst formation. The presence of gangrenous or perforated intestine necessitates resection of the involved bowel. These principles were followed in the present case. The small uncomplicated blind loop of jejunum was left undisturbed while the larger isolated loop containing the perforation was resected. At the time of the present writing there has been no evidence of cyst formation in the blind loop still remaining in the abdomen.

Definite evidence of biliary obstruction appeared in our case during the third postoperative week. This persisted and did not completely clear until the end of the second postoperative month. Stetten[13] reported biliary obstruction occurring earlier and of shorter duration following a duodenojejunostomy for an atresia at the duodenojejunal junction. In his case there was also protracted vomiting postoperatively. There was temptation for further surgery in both these cases. That they were functional disturbances was proved by the subsequent clinical course in both instances. We therefore believe that secondary operations for apparent operative complications in the early postoperative period should be entered on with considerable hesitancy.

A severe diarrhea developed in our infant several days after starting a breast milk formula. Stetten[13] had a similar experience in his case. The diarrhea was promptly brought under control when a protein milk formula was instituted in both of these cases. This would seem to indicate that protein milk is preferable to breast milk as the postoperative feeding.

Our infant received twenty-five transfusions of either whole blood or plasma by vein during the first four postoperative weeks. These provided adequate nutrition during a period when the oral intake was insufficient. There is no question that these repeated transfusions played a large role in the successful outcome of the present complicated case.

SUMMARY

Multiple atresias (aplasias) of the small intestine of a premature infant were given surgical treatment successfully. A small isolated loop of jejunum was left undisturbed. A larger blind loop of jejunum was resected. This loop contained a perforation caused by inspissated meconium. The proximal end of the distal small intestine, containing two areas of stenosis, was resected because its mesentery was torn during the operative procedure. A side to side anastomosis was made between the distal intestinal stump and the proximal dilated jejunum. A prolonged period of biliary obstruction and two episodes of severe diarrhea complicated the postoperative course.

7. Wangensteen, O. H.: Intestinal Obstruction, Springfield, Ill., Charles C Thomas, Publisher, 1942, p. 261. Ladd and Gross.[4] Cohen.[3]
8. Ladd, W. E.; Donovan, E. J., and Gross, R. E.: Panel Discussion on Intestinal Obstruction in Infancy, J. Pediat. **21:** 264 (Aug.) 1942. Webb and Wangensteen.[2] Cohen.[3] Ladd and Gross.[4]
9. Montgomery, A. H.: Diseases of the Small Intestine, Cecum, Peritoneum and Omentum, in Brennemann, Joseph: Practice of Pediatrics, Hagerstown, Md., W. F. Prior Company, Inc., 1942, vol. 3, p. 8. Cohen.[3] Ladd and Gross.[4] Ladd, Donovan and Gross.[5]
10. Ladd, Donovan and Gross.[5]
11. Kato, K., and Poncher, H. G.: The Prothrombin in the Blood of Newborn Mature and Immature Infants, J. A. M. A. **114:** 749 (March 2) 1940.
12. Waddell, W. W., Jr., and Guerry, D., III: The Role of Vitamin K in the Etiology, Prevention and Treatment of Hemorrhage in the Newborn Infant, J. Pediat. **15:** 802 (Dec.) 1939.
13. Stetten, DeW.: Duodenojejunostomy for Congenital, Intrinsic, Total Atresia at the Duodenojejunal Junction, Ann. Surg. **111:** 583 (April) 1940.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. HOWARD A. CARTER, Secretary.

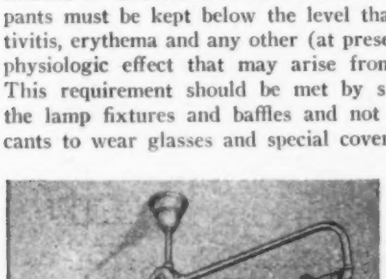
WESTINGHOUSE C-I BACTERICIDAL UNITS
(Operating Room, Hospital Nursery and Hospital Ward Models)
ACCEPTABLE

Manufacturer: Westinghouse Electric & Manufacturing Company, Radio X-Ray Division, Baltimore.

Clinical evidence submitted to the Council on Physical Therapy shows that under properly controlled conditions ultraviolet radiation is effective in killing air borne micro-organisms and may be used to supplement other measures for the prevention of cross infection in hospital wards and nurseries and in operating rooms for reduction of air borne infections in wounds. On the basis of this evidence the Council has undertaken the consideration of ultraviolet disinfecting lamps designed for installation in operating rooms, hospital nurseries and hospital wards. Council acceptance is limited to these installations because the available data do not substantiate the claims for disinfecting of air by ultraviolet radiation in schools, waiting rooms, public gathering places and homes or for the sterilization of solids such as drinking cups. Ultraviolet radiation cannot penetrate deeply and may be absorbed by finger marks, saliva, cosmetics or other foreign matter on a drinking cup; this would render the radiation ineffective, because to kill a micro-organism a direct hit by ultraviolet rays of sufficient intensity is required.

To have effective disinfection of air by ultraviolet radiation, it is necessary for a sufficient number of properly placed lamps to be installed. A lamp used for disinfecting purposes is a single unit in an installation; compliance of the ultraviolet output of a single lamp unit with the Council's requirements does not insure adequate radiant disinfection. Adequate ventilation of air is also a necessity, because dust laden air provides protection for air borne micro-organisms against the ultraviolet radiation.

In an installation of ultraviolet disinfecting units the total amount of direct and scattered radiation incident on the occupants must be kept below the level that will produce conjunctivitis, erythema and any other (at present unforeseen) injurious physiologic effect that may arise from prolonged irradiation. This requirement should be met by suitable arrangements of the lamp fixtures and baffles and not by requiring the applicants to wear glasses and special covering of exposed parts of the body (face, hands) normally uncovered. Hence, if the irradiation is of penetrating intensity, in a corridor of the hospital, for example, care should be taken that the attendants do not receive an exposure which will cause injury to the skin or eyes, and particular attention should be taken to make sure that the degree of irradiation of the space at eye level through which a transient may pass or tarry momentarily will not cause injury to the eyes. Under no circumstances should the occupants of a room be able to look directly at the burner when standing within the region of potent intensity.



Westinghouse C-I Bactericidal Units

Ultraviolet lamps for disinfecting purposes shall have, under suitable ventilating conditions of a room, a concentration of ozone not to exceed one part in ten million.

The Westinghouse C-I Bactericidal Units (trade name) are mounted in fixtures suitable for installation in operating rooms, hospital wards and nurseries. The firm recommends that all aisle ways, including the spaces between beds and wherever transient personnel carry on their work, be irradiated. When the occupants are to remain in the presence of the radiation, the intensity shall not exceed 0.5 microwatt per square centimeter for a continuous exposure of eight hours and shall not exceed 0.1 microwatt per square centimeter for continuous exposure of twenty-four hours per day.

As used in the trade name for the apparatus, C-I means constant intensity and refers to a manually controlled regulator of the ultraviolet radiation intensity. Gaseous discharge ultraviolet generators lose their intensity with age. The Westinghouse C-I Bactericidal Units are guaranteed for four thousand hours. A manually controlled rheostat which is housed in the fixture may be adjusted from time to time to bring the intensity of the ultraviolet radiation to its initial setting of 20 microwatts per square centimeter at 1 meter distance. Users of this equipment are advised to check the intensity every month and to adjust the controlled rheostat so that the output energy will be slightly more than the normal intensity of 20 microwatts per square centimeter at 1 meter distance.

Energy Distribution

Wavelength in Angstrom Units	Energy Radiated in Microwatts per Square Centimeter at 1 Meter
2,537	26.00
2,652	0.793
2,804	0.027
2,894	0.037
2,967	0.135
3,022	0.066
3,129	0.510
3,654	0.435
4,047	0.514
4,359	1.560
5,461	0.850
5,780	0.185

The Westinghouse Electric and Manufacturing Company, Radio X-Ray Division, has developed a plan for routine inspection of installed disinfecting lamps for which a service fee is charged. The firm also guarantees that if the generators show on routine test that the intensity has dropped below the initial setting and cannot be brought up to normal intensity, the tubes will be replaced on a pro rata basis.

Westinghouse C-I Bactericidal Units for ward and nursery applications and when installed in some operating rooms consist of a straight chassis which can be either wall, ceiling or floor pedestal mounted. A circular chassis is provided for attachment to circular major surgical lights in operating rooms.

The chassis consists of two transformer and socket housings set approximately 30 inches apart and supported on a yoke. At the junction of the yoke and supporting stem a rheostat is housed for controlling the primary voltage to the transformer. The ultraviolet generating tube is supported at its ends between the two housings, by specially designed shrouded sockets.

Louvers can be attached to the chassis for shading selected portions of the area irradiated. These louvers are adjustable when used with the straight chassis for shading the patient in the bed or bassinet, in wards and nurseries, while irradiating the spaces between the beds and the corridors or aisle ways. An inside nonadjustable louver on the circular C-I unit used in operating rooms shields the radiation from the surgeon's eyes and directs it downward over the operating field. Its radiation cut off is approximately 12 inches above the operating table, which is well below the surgeon's eye level.

The development of suitable glass enables the manufacturer to produce an ultraviolet radiation generator that transmits the maximum amount of disinfecting radiation of wavelengths 2,537 angstroms and a minimum amount of radiation of shorter wavelengths that produce ozone. If the electrodes in these tubes are of the cold cathode type and certain inert gases are added to the mercury vapor it is possible to control the radiation output of these tubes by controlling the voltage impressed across their terminals. The inert gases serve only to aid in starting the arc in the tube and contribute very little to the character of the radiation emitted.

The radiation output of the Westinghouse bactericidal tube at various wave bands is shown by the accompanying table of energy distribution.

The electrical input power required to operate the C-I unit is approximately 50 watts.

When a unit is installed, the purchaser should make sure that a sufficient number of lamps are used to produce the correct amount of intensity in the enclosure and that they are arranged correctly so as not to cause harm to the occupants. The Council cannot undertake the supervision or assume the responsibility for satisfactory performance of any particular installation.

The Council on Physical Therapy voted to include the Westinghouse C-I Bactericidal Lamp in its list of accepted devices.

WESTINGHOUSE CONSTANT INTENSITY STERILAMP UNITS

(Operating Room, Hospital Nursery and Hospital Ward Models)

WITHDRAWAL OF ACCEPTANCE

Manufacturer: Westinghouse Electric and Manufacturing Company, Radio and X-Ray Division, Baltimore.

The Westinghouse Constant Intensity Sterilamp Units, Operating Room, Hospital Nursery and Hospital Ward Models, were announced as acceptable to the Council in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION of May 2, 1942. The units were declared to be a useful supplementary measure of asepsis in hospital nurseries, wards and operating rooms where conditions are carefully controlled.

At the time the Constant intensity Sterilamp units were submitted by the Radio and X-Ray Division of the Westinghouse Electric and Manufacturing Company for consideration by the Council, it was asserted that the complete term "Constant Intensity Sterilamp Units" would be used only for the hospital units, and that this distinction would serve to differentiate between the devices used for accepted purposes and the Sterilamps publicized for other purposes. This has been found to be an unpractical arrangement and has proved to be misleading to the profession and to the public.

The term "Sterilamp" has been widely publicized by the Westinghouse Electric and Manufacturing Company. Through extensive publicity it has been presented to the public as a designation for an apparatus that will kill bacteria in lavatories, bakeries, breweries, wineries, canneries, restaurants and so on. It is also claimed to aid in the tenderizing of meat. Such uses are stated in paid advertisements for the Westinghouse Electric and Manufacturing Company. Moreover, publicity for the name "Sterilamp" and for the apparatus is also solicited by the firm in another manner: an active "news service" for the company distributes among various lay and professional publications "news stories" concerning the device. These stories are prepared in such a manner that they may be inserted in the regular columns of the magazine; photographs also are furnished. The items are naturally of a somewhat sensational nature and many of them appear to be finding a place in widely read publications.

An advertisement in *Science* for Oct. 16, 1942 shows a hospital operating room scene (the operating team without adequate protection) and carries the headline "Abandon hope . . . all Germs who enter here." In the body of the advertisement, after a description of the unit, it reads "The commercial applications of the Sterilamp are practically endless. It is used in the 'Tenderay' process for tenderizing meat . . . and in bakeries, breweries, wineries, canneries, restaurants, biological laboratories, lavatories . . . wherever air borne bacteria must be killed or controlled." This advertisement definitely couples the hospital and the commercial uses of the Sterilamp.

The similarity in the names of the accepted Constant Intensity Sterilamp Units accepted for hospital use and the Sterilamp employed for purposes which have not been submitted for acceptance to the Council and the overlapping publicity are considered misleading. The public has no means of discerning an application acceptable to the Council from one that has not been considered by it.

The Council voted to withdraw the acceptance of the Westinghouse Constant Intensity Sterilamp Units.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Secretary.

EPHEDRINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1943, p. 255).

The following dosage form has been accepted:

BURROUGHS WELLCOME & CO., INC., NEW YORK

Solution Ephedrine Hydrochloride, 3 per cent: Preserved with chlorobutanol 0.5 per cent; 1 fluidounce and 1 pint bottles.

LIVER INJECTION (See New and Nonofficial Remedies, 1943, p. 392).

The following dosage forms have been accepted:

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Liver Extract for Parenteral Use, 5 U. S. P Units per Cc.: 2 cc. ampul and 10 cc. rubber capped vial. A sterile aqueous solution of liver preserved with 0.5 per cent phenol.

Liver Extract for Parenteral Use, 10 U. S. P. Units per Cc.: 1 cc. and 1½ cc. ampuls and 10 cc. rubber capped vial. A sterile aqueous solution of liver preserved with 0.5 per cent phenol.

PROCAINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1943, p. 82).

The following dosage form has been accepted:

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Sterile Solution Procaine Hydrochloride 2%: 30 cc. rubber capped vials and 100 cc. bottles. Each cubic centimeter contains chlorobutanol 5.0 mg., procaine hydrochloride 2.0 mg., sodium bisulfite 1.0 mg., sodium chloride 8.4 mg.

SULFANILAMIDE (See New and Nonofficial Remedies, 1943, p. 175).

The following dosage forms have been accepted:

AMERICAN PHARMACEUTICAL CO., INC., NEW YORK

Sulfanilamide *(Powder):* 1 ounce, 4 ounce and 1 pound packages.

PITMAN-MOORE CO., INDIANAPOLIS

Tablets Sulfanilamide: 0.324 Gm. (5 grains).

THIAMINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1943, p. 590).

The following additional dosage form has been accepted:

SCHIEFFELIN & CO., NEW YORK

Tablets Thiamine Hydrochloride: 10 mg.

ARSPHENAMINE (See New and Nonofficial Remedies, 1943, p. 198).

The following additional dosage forms have been accepted:

MERCK & CO., INC., NEW YORK

Ampules Arsphenamine: 1.0 Gm. and 3.0 Gm.

NEOARSPHENAMINE (See New and Nonofficial Remedies, 1943, p. 203).

The following additional dosage forms have been accepted:

MERCK & CO., INC., NEW YORK

Ampules Neoarsphenamine: 3.0 Gm. and 4.5 Gm.

PHENOBARBITAL (See New and Nonofficial Remedies, 1943, p. 502).

The following dosage forms have been accepted:

AMERICAN PHARMACEUTICAL CO., INC., NEW YORK

Tablets Phenobarbital: 0.032 Gm., 0.016 Gm. and 0.1 Gm.

THE WARREN-TEED PRODUCTS CO., COLUMBUS, OHIO

Tablets Phenobarbital: 16 mg., 32.5 mg., 0.1 Gm.

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SATURDAY, NOVEMBER 20, 1943

SOUND MEDICAL PRINCIPLES FOR MEDICAL PRACTICE

Elsewhere in this issue [1] appear the principles to govern the evolution of medical practice adopted by the Representative Committee of the British Medical Association and by representatives of many official bodies in Great Britain. This group comprised representatives of general practice, consultant and specialistic practice, public health, rural practice, medical staffs of provincial nonteaching hospitals and others. Special emphasis should be placed on the principle that the health of the people depends primarily on the social and environmental conditions under which they work, and that improvement and extension of measures to satisfy these needs should precede or accompany any future organization of medical service. Also fundamental is the principle that the efficiency of any medical service depends primarily on medical and scientific knowledge, which, in turn, is based on medical education.

The British group establishes the principle that the function of the state should be to coordinate existing provisions, both official and nonofficial, to augment these where necessary, and to secure that they are available without economic barriers. Supplementary to this is the statement that the state should confine itself within these wide limits, invading the personal freedom of both citizen and doctor only to the extent which the satisfaction of these functions demands. The platform of the American Medical Association likewise emphasizes the importance of an agency of the federal government, under which shall be coordinated and administered all medical and health functions of the federal government, exclusive of those of the Army and Navy, and the allotment of such funds as the Congress may make available to any state in actual need for the prevention of disease, the promotion of health and the care of the sick *on proof of such need*. The medical profession has not opposed appropriations by Congress of funds for medical purposes. It asks that the need be shown and that funds be locally rather than nationally administered.

1. British Medical Association on Beveridge Plan, this issue, p. 777.

The British Representative Committee again insists on free choice as between doctor and patient as fundamental to sound medical practice and states emphatically that it is not in the public interest that the state should invade the doctor-patient relationship. It is, no doubt, for this reason that the Representative Committee says that it is not in the public interest that the state should convert the medical profession into a salaried branch of central or local government service.

The Representative Committee of the British Medical Association advocates as a step forward in Great Britain the extension of the National Health Insurance Plan to include the dependents of insured persons and others of like economic status, and to cover consultant and specialistic services and laboratory and hospital facilities, as well as general practitioner services. This statement indicates at once how completely lacking has been the National Health Insurance Plan in approximating anything resembling the quality of medical service that prevails in the United States. This recommendation again emphasizes that the National Health Insurance Plan of Great Britain covers wage earners up to a certain level of income only, that it has *not* included the dependents, that it has *not* included others than wage earners of low economic status, that it has *not* provided consultant and specialistic service, or hospital facilities or laboratory service. The gradual development of prepayment plans in the United States has recognized the need for such services. The medical profession has approved prepayment plans to cover the costs of hospitalization, and also prepayment plans on a cash indemnity basis for meeting the costs of medical care. Certainly the gradual evolution in the practice of medicine that has taken place in this country has led to higher standards of medical practice and of medical service than are elsewhere available. The maintenance of the quality of the service is fundamental in any health program.

The American Medical Association, through its House of Delegates, its Board of Trustees and its Council on Medical Service and Public Relations, has urged again and again the continuing evolution of medical practice, based on sound experimentation. Already many state and county medical societies, many industries and many insurance bodies have set up experiments of this type, some of which have already proved to be unsound. In this connection, therefore, the final recommendations of the Representative Committee of the British Medical Association, and of the Medical Planning Commission, deserve increased emphasis. They say:

> There should be initiated, by arrangement and agreement between the government and the profession, organized experiments in the methods of practice, such as group practice, including health centers of different kinds, which should extend to general practitioner hospital units attached to general hospitals. Future developments in group practice should depend on the results of such clinical and administrative experimentation.

Only by such controlled scientific experimentation can a sound system of medical service to meet the needs of all the persons in the community be developed.

KETONES AS FUEL FOR MUSCLE CONTRACTION

Following the proposal of the now widely accepted theory of beta oxidation of fatty acids and the accumulation of supporting evidence, the view developed that there is an obligate coupling of oxidative reactions in the metabolism of fat and carbohydrate. The oft repeated aphorism that "Fats burn in the flame of the carbohydrates" was refined to the extent that 1 mole of dextrose was said to promote the oxidation of 2 moles of fatty acid without the production of ketone bodies. The latter compounds were tacitly considered products of the imperfect combustion of fat, without value to the organism and the removal of which was attended with more or less disturbance in the acid-base balance of the body and at times with actual tissue damage.

Further study of the metabolism of fat in the light of the implications of the theory of beta oxidation early indicated that other modes of oxidation of fatty acids are also operative in the organism. Now the position of ketone bodies has changed from that of a waste side-product of abnormal fat metabolism to that of a normal breakdown product of fats which in turn is utilized by the organism. Thus it has been shown that the muscle in a normal animal removes ketones from a perfusion fluid or from blood [1] and that this takes place also in the tissue of diabetic organisms.[2] In a recent report [3] data both on human subjects and on experimental animals are cited to show again that ketones can serve as fuel for muscular activity. On ordinary balanced diets containing carbohydrate, vigorous exercise was accompanied by little if any decrease in blood ketone level. On a diet producing ketosis, however, a drop in concentration of ketones in the blood occurred during work with a rise following cessation of muscular activity.

The current view regarding the metabolic significance of ketones does not regard these compounds as accidental products of incomplete combustion of fats but rather as normal intermediates in fat metabolism constantly being produced by the liver [4] and thence distributed to the tissues as fuel for work. When there is a lack of liver glycogen, ketones become of major importance in the production of heat and mechanical energy by the muscles; under these conditions the liver apparently overproduces ketones, which accounts for the appearance of these compounds in the urine in ketosis. According to the newer views carbohydrate still influences the oxidation of fat, not, however, in an obligate coupled reaction but because it is the preferred fuel for muscle action; the two are oxidized side by side, but in the absence of carbohydrate the emergency need for fuel is met by the accentuation of ketone production from fat. The locus of the influence of carbohydrate on fat metabolism appears to be essentially in the liver rather than in the tissues.

1. Snapper, I., and Grünbaum, A.: Biochem. Ztschr. **201:** 464, 1928.
2. Chaikoff, I. L., and Soskin, Samuel: Am. J. Physiol. **87:** 58 (Nov.) 1928. Blixenkrone-Møller, N.: Ztschr. f. physiol. Chem. **253:** 261, 1938.
3. Neufeld, A. H., and Ross, W. D.: Am. J. Physiol. **138:** 747 (April) 1943.
4. Mirsky, I. A.: Am. J. Physiol. **116:** 110 (June) 1936. Barnes, R. H.; Drury, D. R.; Greely, P. O., and Wick, A. N., ibid. **130:** 144 (July) 1940. Crandall, L. A.; Ivy, H. B., and Ehni, G. J., ibid. **131:** 10 (Nov.) 1940.

Current Comment

GUESSING AT PHYSICIANS' INCOMES

The U. S. Department of Commerce recently issued a release on the incomes of physicians of which the following sentence has been widely published and discussed: "The average gross income reported for 1941 was $8,524, and the average net income $5,047." Analysis of the methods by which these figures were obtained reveals that they are little more than guesses. The full report of the study on which they are based is printed in the "Survey of Current Business," issued by the Bureau of Foreign and Domestic Commerce of the U. S. Department of Commerce, October 1943, pages 16 to 20. From this we learn that "questionnaires were sent to a representative sample of physicians who were requested to give information relating to gross and net incomes, costs of practice, age, type of practice, employees, pay rolls and other selected items during the period from 1936 through 1941." A total of 1,898 returned questionnaires were used, about 1 per cent of the 180,496 physicians reported in the American Medical Directory for 1942, when the survey was made. One hundred of these questionnaires from the Southwest were excluded because of "a strong bias . . . in the sample from Texas." For apparently the same reason the returns from Illinois, Indiana and Michigan were not included. There is no explanation of the method by which the sample was selected or any proof that it was representative. It is admitted that there were "special difficulties arising from the impracticability of obtaining a full representation of those of the younger doctors who were withdrawn from independent practice into the armed forces prior to the summer of 1942," but this is purported to have been allowed for by "weighting." In the summary table, returns from only twenty-one states are listed. Among those omitted, in addition to those previously mentioned, are Florida, North Carolina, South Carolina, Tennessee, Minnesota, Missouri and Wisconsin. On this very small foundation, nevertheless, is built an inverted pyramid of deductions, conclusions, diagrams and classifications based on income by age, localities, size of city and gradation of income, all given to the final dollar or to a decimal fraction, which gives a semblance of accuracy which the foundation of facts is entirely too slight to support.

SCHIRESON RESTORED LICENSE TO PRACTICE MEDICINE IN NEW JERSEY

The notorious career of Henry J. Schireson, self-styled plastic surgeon, has been repeatedly exposed in THE JOURNAL. A medicolegal abstract appearing in this issue (page 790) deals with the action of the Court of Errors and Appeals of New Jersey concerning this disreputable charlatan. The court has just reversed the order of the Board of Medical Examiners of that state, which had previously revoked Schireson's license to practice medicine. Schireson at the time of revocation of his license to practice by the Board of Medical Examiners was serving a term in a federal penitentiary in Pennsylvania for unlawfully concealing assets from a trustee in bankruptcy, for making a false oath in bankruptcy proceedings and for perjury. He had been sentenced after a so-called plea of "nolo contendere." The gist of the court's decision was that under the circumstances he had not been "convicted," whereas if he had pleaded guilty or had been found guilty after a plea of "not guilty" he would have been considered "convicted" of a crime involving "moral turpitude" and the Board of Medical Examiners would have been within its statutory rights in revoking his license. The order of the Court of Errors and Appeals seems difficult to reconcile with common sense. Now who can protect the public against this charlatan? Obviously any one with a loathsome record, such as that of Schireson, should never have been granted a license in the first place!

POSTWAR DANGERS OF TROPICAL PARASITIC DISEASES

The section of parasitology of the New York Academy of Sciences held a conference last March on parasitic diseases in relation to the war. Current and postwar problems associated with tropical and parasitic diseases were considered.[1] At the end of his discussion of the clinical features of tropical parasitic diseases in war operations Lieutenant Colonel Mackie of the Army Medical School, Washington, D. C., emphasized the postwar dangers from those diseases in the United States. He said:

> It is inevitable that numerous carriers and individuals with latent infections will be scattered over the country following demobilization. Certain of these conditions will be transmissible and will subsequently appear in persons who have not been out of the country. Furthermore, the clinical picture attending the combination of familiar endemic disease such as pneumonia with one of these less familiar parasitic infections may be most bizarre and atypical. Each obscures the characteristic features of the other. Contrary to the classic dictum of medical teaching against multiplicity of diagnoses, it must be recognized a priori that such multiplicity will occur and must be promptly recognized. There is urgent need for the inclusion of much more parasitology and tropical medicine in the curricula of our medical schools.

In the discussion the suggestion was made that medical schools should insist on entomology and parasitology as part of the entrance requirements; also that principles of biology might well be taught in colleges from the study of parasites and their vectors rather than from the more conventional entomology. The menace of tropical diseases in the postwar period presents a challenge to medical schools, public health agencies, medical societies and individual physicians.

1. Stunkard, H. W.; Coggeshall, L. T.; Mackie, T. T.; Matheson, Robert, and Stoll, N. R.: Parasitic Diseases and American Participation in the War, Ann. New York Acad. Sc. **44**: 189 (Sept. 30) 1943.

THE ETIOLOGY OF HYPERTENSION

Significant studies from this country, England and Argentina have focused attention on renal ischemia and a resulting humoral mechanism as a significant factor in the etiology of "essential hypertension." Many clinical workers have been skeptical of claims that renal ischemia is the only factor involved. Now important evidence is presented by Gregory, Lindley and Levine[1] that essential hypertension may be a general symptom which may be caused by vasomotor as well as renal factors. These Texas investigators show that spinal anesthesia, which has little effect on the blood pressure of normal people, may produce a profound fall in the blood pressure of patients with essential hypertension. Correction of renal ischemia in experimental hypertension produced by the Goldblatt method is followed by a fall of elevated blood pressure after several hours or days. Spinal anesthesia, however, produces a fall in blood pressure of patients with essential hypertension within a few minutes. When the local anesthetic action has worn off, the blood pressure of hypertensive patients returns in a few moments to the usual level for those patients. This rapidity of action suggests a nervous mechanism. The functional integrity of the peripheral vasoconstrictor apparatus of such hypertensive patients is shown by the usual vasoconstrictor action of epinephrine at a time when their blood pressure is at the lowest levels as a result of the spinal anesthesia. Essential hypertension may apparently have a vasomotor cause of central nervous system origin as well as a possible humoral cause involving the kidneys.

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

The Annual Congress on Medical Education and Licensure will be held in the Palmer House in Chicago, Feb. 14 and 15, 1944. The program for the first day will be under the auspices of the Council on Medical Education and Hospitals of the American Medical Association; for the second day under the auspices of the Federation of State Medical Boards. At the first annual conference of the Council on Medical Education in 1902 its chairman, Dr. Arthur Dean Bevan, reported "Your committee finds . . . that the American Medical Association was founded for the purpose of elevating . . . medical education in the United States" and that "this is still the most important function of the American Medical Association." The annual congress has exerted a powerful influence in improving the quality of medical education. The current important problems lend special significance to this next congress. All who are concerned with medical education in wartime and in the peace to follow should plan to attend.

1. Gregory, Raymond; Lindley, E. L., and Levine, Harry: Studies on Hypertension: II. The Effect of Spinal Anesthesia on the Blood Pressure of Hypertensive Patients: Its Possible Bearing on the Pathogenesis of Essential Hypertension, Texas Rep. Biol. & Med. **1**: 167 (No. 2) 1943.

MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on War Participation of the American Medical Association, announcements by the Surgeons General of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession.

ARMY

DISTINGUISHED SERVICE MEDAL TO GENERAL MAGEE

By direction of the President, a Distinguished Service Medal was awarded by the War Department to Major General James C. Magee, United States Army, "for exceptionally distinguished and meritorious service in a position of great responsibility as Surgeon General of the Army for four years terminating May 31, 1943." The citation states: "His far sighted and dynamic energy was greatly responsible for our soldiers being able thus far to emerge from battle with the lowest mortality rate among the wounded in our history. The Army has benefited greatly from his eagerness to avail himself of the most expert advice and data from the civilian medical profession in the fields of research against epidemics. General Magee foresaw and prevented a dangerous shortage of surgical instruments by pressing the development of domestic manufacture, resulting in an ample supply and improved quality of these vital materials. Under his guidance the Army's battle against the acquisition of venereal disease produced the lowest rate of infection in the Army's history."

AVIATION MEDICAL EXAMINERS

Graduation exercises were held at the School of Aviation Medicine, Randolph Field, Texas, on October 7 following completion of the course for aviation medical examiners. The didactic portion of the course was conducted at the School of Aviation Medicine, Randolph Field, Texas, and the practical portion of the course at the three army air forces classification centers. The list of students graduating follows:

ALABAMA

John L. Branch, Major, Montgomery.
William DeVlaming, Captain, Birmingham.
Archibald M. Gaulocher, Captain, Montgomery.
Virgil S. Gully, 1st Lieut., Butler.
Bennett J. LaCour Jr., Captain, Birmingham.

ARIZONA

Frederick W. Knight, Captain, Safford.

ARKANSAS

Ross Bizzell, Captain, Little Rock.
William M. Woods, Captain, Huntington.

CALIFORNIA

John H. Austin, 1st Lieut., Banning.
Howard F. Evans, 1st Lieut., Beverly Hills.
Robert H. Finley Jr., Captain, San Francisco.
Antonio J. Franzi, Major, San Francisco.
Walter W. Herrmann, Major, Grass Valley.
Nathan S. Hintt, Captain, Los Angeles.
William S. Ireton, Captain, Tulare.
Samuel R. Irvine, Captain, Los Angeles.
Richard B. Jones, Major, San Francisco.
Russel V. Lee, Lieut. Col., Palo Alto.
Milton Lerner, 1st Lieut., Olive View.
Frank E. Lones, Captain, Paso Robles.
Robert G. Lukens, 1st Lieut., Sanitarium.
William W. Mills, 1st Lieut., San Mateo.
Carl E. Nemethi, 1st Lieut., Los Angeles.
Edmund W. Overstreet, Captain, San Francisco.
Glenn A. Pope, Captain, Oakland.
Thomas B. Rhone, Captain, Orange.
Phillip E. Svec, 1st Lieut., Los Angeles.
Neville T. Ussher, Major, Santa Barbara.
Richard W. Walt, Captain, San Bernardino.
Frank W. Wilks, Captain, Hagginwood.
William T. Zimmermann, Captain, Los Angeles.

COLORADO

George M. Harrison, 1st Lieut., Denver.
Frank B. Olsen, Ist Lieut., Uravan.
Howard C. Smith, Captain, Colorado Springs.

CONNECTICUT

Donald L. Ferris, Captain, Greenwich.
John S. Hathaway, Captain, New Haven.
Charles E. Windus, Captain, New Haven.

DELAWARE

Hans E. Burkhardt, Captain, Wilmington.

DISTRICT OF COLUMBIA

John B. Brady, Captain, Washington.
William R. Coleman, Captain, Washington.
Fratis L. Duff, Lieut. Col., Washington.

GEORGIA

Major William O. Bedingfield, Major, Savannah.
John M. Hulsey Jr., Major, Gainesville.
Edmond H. Kalmon Jr., Major, Albany.
Weems R. Pennington, 1st Lieut., Macon.
William G. Simmons, Captain, Sylvania.

IDAHO

Howard E. Baughman, Captain, Council.
Harvey A. Hatch, 1st Lieut., Idaho Falls.
Richard C. Kaar, Captain, Burley.
Samuel D. Simpson, Captain, Caldwell.

ILLINOIS

Charles F. Alderson, Captain, East St. Louis.
Soddie J. Barkett, Captain, Cairo.
John B. Beare, Captain, Chester.
James W. Clark, Major, Chicago.
Howard D. Countryman, Major, Rockford.
Joseph A. Davis, 1st Lieut., Chicago.
Joseph C. Ehrlich, Captain, Chicago.
Edward A. Fahnestock, Captain, Bridgeport.
Harry L. Faulkner, Major, Chicago.
Roy L. Kenward, Captain, Melvin.
Philip J. Lopresti, 1st Lieut., Chicago.
Herman L. Mishkin, Captain, Chicago.
Jean H. Motier, 1st Lieut., Chicago.
Samuel C. Noto, 1st Lieut., Chicago.
Herbert P. Rasche, 1st Lieut., Maywood.
Keith Rhea, Major, Clinton.
Morton Simons, Major, Chicago.
Guy L. Tourney, 1st Lieut., Quincy.
John W. Vertuno, Captain, Melrose Park.
Max I. Vinnecour, Captain, Chicago.
Hugh H. Worsley, 1st Lieut., Chicago.

INDIANA

Dale D. Dickson, Captain, Letts.
Forest M. Kendall, 1st Lieut., Alexandria.
Milo O. Lundt, Captain, Elkhart.
George W. Macy, Captain, Columbus.
Richard C. Miller, Captain, North Vernon.
Harold D. Pyle, Major, South Bend.
Ames R. Templeton, Captain, South Bend.
Fred. L. Toumey, Captain, Ridgeville.

IOWA

Luther C. Hickerson, 1st Lieut., Brooklyn.
Philip G. Keil, 1st Lieut., Iowa City.
Roland T. Smith, 1st Lieut., Des Moines.

KANSAS

William C. Fairbrother, Captain, Madison.
Joseph H. Johnson, Captain, El Dorado.

KENTUCKY

Robert C. Bock, Captain, Louisville.
Eugene J. Burns, Major, Louisville.
Charles L. Roser Jr., Major, Louisville.
Robert W. Smith, 1st Lieut., Owensboro.
Marion C. Spradlin, Captain, Somerset.
Woodford B. Troutman, Major, Louisville.

LOUISIANA

Louis E. Chauvin, 1st Lieut., Abbeville.
Wilbur L. Edgerton, Captain, Simmesport.
Jack R. Frank, 1st Lieut., Crowley.
John W. Henrickson, 1st Lieut., New Orleans.
David W. Kennedy, Captain, Vivian.
Frank M. Lhotka, 1st Lieut., New Orleans.
Jack G. Miller, Captain, New Orleans.
Harold J. Sabatier, 1st Lieut., Elton.
Cecil L. Sinclair, 1st Lieut., New Orleans.

MAINE

Kenneth A. LaTourette, Captain, Farmington.
Edward A. McFarland, 1st Lieut., Lewiston.

MARYLAND

Nicolas C. Camara-Peon, 1st Lieut., Baltimore.
Harold E. Houck, Captain, Galena.
Frederick S. Wolf, Captain, Baltimore.

MASSACHUSETTS

Kenneth V. Dalton, 1st Lieut., Weymouth.
Bernard J. Doyle, 1st Lieut., Easthampton.
Herman Felsen, 1st Lieut., Easthampton.
Irvin F. Hermann, Captain, Boston.
Raymond W. Latham, 1st Lieut., Boston.
Everett T. Tomb, Major, Framingham.
Sidney R. Wilker, Captain, Cambridge.

MICHIGAN

Homer C. Coppock, 1st Lieut., Grand Rapids.
William D. Frostic, Captain, Wyandotte.
Howard H. Gradis, 1st Lieut., Eloise.
Earl E. Hamilton, Captain, Traverse City.

Walter N. Herbert, Captain, Yale.
Jack Lapides, 1st Lieut., Ann Arbor.
Walter K. Locklin, Captain, Hartford.
John B. Nicholson, Captain, Marquette.
Charles TenHouten, Major, Paw Paw.
Jacob VanLoo, Captain, Belding.

MINNESOTA

Gerald G. Geissler, Major, Cloquet.
Henry B. Troost, Captain, Mankato.
Richard E. Watson, 1st Lieut., St. Paul.
Thomas G. Wellman, 1st Lieut., Lake City.

MISSISSIPPI

Robert P. Hudson, Captain, Utica.
John S. Lyle, Captain, Gulfport.

MISSOURI

Lee A. Hall, Captain, Clayton.
Russell D. Harris, Major, Carthage.
Edward J. Kloess, Major, St. Louis.
Philip S. Mountjoy, Captain, St. Louis.
Samuel E. Schechter, 1st Lieut., St. Louis.
Bernard Schwartzman, Captain, St. Louis.

MONTANA

John T. Parker, 1st Lieut., Miles City.

NEBRASKA

Donaldson W. Kingsley, Major, Hastings.
Ernest E. Lennemann, Captain, Falls City.

NEW JERSEY

Lucien F. Della Fera, 1st Lieut., Newark.
Edward H. Dyer, 1st Lieut., Ventnor.
Leo Joseph Kelly, 1st Lieut., Perth Amboy.
Ralph M. Lechausse, Captain, Newark.
Padie Richlin, Captain, New Brunswick.
Howard C. Robbins, Captain, Bridgeton.
Edward Shaen, Captain, Camden.

NEW MEXICO

Earl L. Malone, 1st Lieut., Roswell.

NEW YORK

Irving H. Beckwith, Major, White Plains.
Richard C. Blackwell, Captain, New York.
Merol E. Brickner, 1st Lieut., Gloversville.
Donald W. Brundage, Captain, Pulaski.
John N. Daly, Captain, Jamaica.
Herman J. Dick, 1st Lieut., Syracuse.
Isidore L. Epstein, Captain, Brooklyn.
Robert M. Fisher, Captain, New York.
Frank J. Fragala, Captain, New York.
William J. Gartland, 1st Lieut., St. Albans.
Daniel L. Goldstein, Major, New York.
Rex E. Greer, Major, Castle Point
Morton M. Halpern, 1st Lieut., Brooklyn.
Frederick A. Hill, Captain, Brooklyn.
Arthur H. Horowitz, 1st Lieut., Floral Park.
Seymour A. Horwitz, 1st Lieut., New York.
William C. Karl, 1st Lieut., Gloversville.
August M. Kleeman Jr., 1st Lieut., Warwick.
Charles Klein, 1st Lieut., New York.
Frederick L. Landau Jr., Captain, Bronxville.
John W. Latcher, 1st Lieut., Oneonta.
John G. Lipani, 1st Lieut., Staten Island.
Joseph F. McClughan, Captain, Newburgh.
Gilbert H. Mudge, Captain, New York.
Henry Joseph Noerling, Captain, Valatie.
Nino V. Panissidi, 1st Lieut., Jamaica.
Maurice S. Raben, 1st Lieut., Valhalla.
Mark H. Rottner, 1st Lieut., New York.
David Scher, Captain, Jamaica.
Stephen M. Schwartz, Major, Richmond Hill.
George A. Shetter, 1st Lieut., New York.
Steward H. Smith, 1st Lieut., New York.
Charles D. Stinard, 1st Lieut., Coxsackie.
Paul M. Traub, Major, Washingtonville.
Leo R. Varon, Major, New York.
Gerard A. Vetromile, 1st Lieut., Merrick.
Mortimer Weiss, Captain, Brooklyn.
Charles L. Wood, Captain, Kew Gardens.

NORTH CAROLINA

William F. Eckbert, Captain, Crossnore.
John Wesley Frazier, Major, Salisbury.
Jacob H. Shuford, Captain, Hickory.

NORTH DAKOTA

Maxwell H. D. Johnson, 1st. Lieut., Watford City.

OHIO

Ernest Z. Bower Jr., 1st Lieut., Ravenna.
Robert A. Breckenridge, Captain, Cuyahoga Falls.
Milton H. F. Gustafson, Captain, Cleveland.
Robert K. Miles, 1st Lieut., Thompson.
Rudolph J. Pospisil, 1st Lieut., Springfield.
James A. D. Schaal, Captain, Cincinnati.
Frederick S. Sperry, 1st Lieut., Akron.

OKLAHOMA

David E. Cantrell Jr., Captain, Healdton.
William J. Sayles, Captain, Miami.
Alexander Shadid, 1st Lieut., Elk City.

OREGON

Siegfried R. Berthelsdorf, Captain, Olene.
Charles L. Coyle, Captain, Medford.

PENNSYLVANIA

Benjamin C. Barnes, Captain, Philadelphia.
James A. Barry, Captain, Pittsburgh.
Frank C. Bowers, Captain, Erie.
Homer V. Bradshaw, Captain, Pittsburgh.
Charles D. Coppes, 1st Lieut., Philadelphia.
Emil J. Datesh, 1st Lieut., Dormont.
William H. Diehl, Major, Lebanon.
Robert R. Geer, 1st Lieut., Johnstown.
William E. Glosser Jr., 1st. Lieut., Reading.
David H. Hershfield, Captain, Wilkes-Barre.
Kelse M. Hoffman, Major, Franklin.
William H. Karmany, Captain, Harrisburg.
Peter G. Kutra, 1st Lieut., McIntyre.
Joshua Levitsky, 1st Lieut., Philadelphia.
Marlin C. Moore, 1st Lieut., Mount Carmel.
Joseph D. Moylan, Captain, Scranton.
Jerome J. Rubin, 1st Lieut., Philadelphia.
Wilfred H. Winey, 1st Lieut., Johnstown.
Robert H. Yockey, 1st Lieut., Butler.
Robert B. Zerbe, Major, Tremont.

RHODE ISLAND

Frank C. J. Jadosz, Captain, Providence.

SOUTH CAROLINA

Lawson P. Barnes, Captain, Bennettsville.
Merchant W. Colgin, Captain, Charleston.
James L. King, Captain, Plum Branch.
John T. Stone, 1st Lieut., Greenwood.

TENNESSEE

Tom N. Humphrey, Captain, Selmer.
Maurice Seligman, Captain, Nashville.

TEXAS

Thomas B. Abney, Captain, Overton.
William B. Adamson, Major, Abilene.
Robert C. Atmar, Captain, San Antonio.
Adolph W. Brazda, Captain, Ranger.
James Mitchell Bown, Captain, Marlin.
Charles K. Bruhl, Captain, Houston.
Dan H. Byram, Captain, Port Arthur.
Charles L. Concklin, 1st Lieut., Corpus Christi.
Richard H. Driessel, 1st Lieut., Fort Worth.
John W. Eschenbrenner Jr., Major, Fort Worth.
Robert M. Johnson, Major, Houston.
S. Braswell Locker, 1st Lieut., San Antonio.
Anthony M. Orlando, Captain, San Antonio.
Guy L. Pattillo, Captain, Abilene.
Herbert M. Sanford, Captain, Perryton.
Thomas J. Scanio, 1st Lieut., West.
John R. Shipp, Captain, Cranfills Gap.
William S. Warren, 1st Lieut., Center.
Byron P. York, Major, Houston.

VIRGINIA

Louis S. Leo, Major, Norfolk.
Alfred Ogus, 1st Lieut., Norton.

WASHINGTON

Roll N. Dillon, Captain, Seattle.
Frank H. Douglass, Major, Seattle.
John E. Flynn, Captain, Everett.
Robert L. King, Major, Seattle.
Roderick A. Norton, 1st Lieut., Tacoma.
Francis C. Spratt, Captain, Olympia.
Kenneth H. Sturdevant, 1st Lieut., Puyallup.
Don G. Willard, Captain, Tacoma.

WISCONSIN

Kermit W. Covell, Captain, Racine.
John S. Giffin, 1st Lieut., Oconomowoc.

MEDICAL UNIT BEHIND FRONT LINES

With the Fifth Army in Italy and within sight and sound of the battle, a group consisting of 22 doctors, 18 nurses and 58 enlisted men in the U. S. Army is working immediately behind our front lines doing major operations that are saving the lives of many American soldiers. This field hospital, under the command of Major Samuel A. Hanser of St. Louis and his administrative officer, Lieut. Robert Brenneman of Harrisburg, Pa., is divided into three platoons which leap frog each other as the army advances. Dr. Hanser has taken the three platoons of 6 doctors and 6 nurses each, and 2 roving surgeon specialists, to within a few miles of the front to handle severely wounded cases. When a man is hit the litter bearers and first aid men search him out and he receives what treatment the field dressing station affords. If his condition is such that he is able to ride over roads cut into mire and ruts by bombs and mines, he will be taken by ambulance to the evacuation hospital, 10 or 15 miles behind the lines. However, if he is suffering from shock or loss of blood or exposure, or is so severely wounded that he cannot survive that ride, he will be taken the 2 or 3 miles to the field hospital, where he can get instant expert attention. Although the hospital is equipped with the materials and instruments of a large city hospital, these doctors and nurses eat and sleep in unfloored tents and work under the most difficult circumstances. While the new emergency field service loses more men than other hospitals because it receives the most serious cases, its courageous staff has the great satisfaction of knowing that hundreds of lives are being saved through its work.

VETERAN ARMY NURSE DIES AT WALTER REED HOSPITAL

The War Department announced on September 10 the death of Major Emily H. Weder, Army Nurse Corps, assistant to the principal chief nurse at Walter Reed General Hospital, Washington, D. C. Major Weder, formerly of Philadelphia, entered the Army Nurse Corps on Jan. 5, 1918.

CAPTAIN LAYDEN AWARDED VALOR MEDAL

Capt. Milton J. Layden, flight surgeon in the Army Air Force, has been awarded the Soldier's Medal for valor. The citation which accompanied the award said "The Soldier's Medal is being awarded for the outstanding heroism of Captain Layden in the face of imminent danger. He voluntarily rendered heroic assistance at the scene of an appalling disaster occasioned by a terrific explosion of bombs. Trucks loaded with bombs were burning furiously, but despite the danger of imminent explosion Captain Layden labored to give all possible aid and assistance to the injured. Charred and maimed bodies were treated unmindful of the warning given him that further explosions would occur. He was forced to withdraw by order of superior authority. The heroism, valor and courage in the face of great danger reflects great credit on Captain Layden and the armed forces of the United States." Dr. Layden graduated from the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, in 1938. He enlisted in the army in October 1940 and received his wings from the School of Aviation Medicine, Randolph Field, Texas.

PRISONER OF THE JAPANESE

According to information received by his father and published in the Detroit *Free Press*, September 18, Capt. Robert K. Whiteley, formerly of Detroit, is being held a prisoner of war by the Japanese in the Philippine Islands. Captain Whiteley graduated from the University of Michigan Medical School, Ann Arbor, in 1933.

PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their Procurement and Assignment Service quotas for Jan. 1, 1944.

1. Prospective interns who have not yet obtained a hospital appointment should communicate with these institutions either directly or through the office of the dean of their medical school. Assistant residents and residents should direct their applications to the hospital superintendent in the usual manner.

2. Institutions having a shortage of interns or residents are again invited to make their needs known to the Council on Medical Education and Hospitals. In reporting shortages, hospitals should indicate the number of interns, assistant residents and residents needed to complete their quotas for Jan. 1, 1944.

Hospitals Reporting Vacancies for Interns or Residents

(Continuation of list in THE JOURNAL, November 13, pp. 707-708).

CALIFORNIA

St. Joseph's Hospital, San Francisco. Capacity, 289; admissions, 7,014. Sister Mary Raymond, R.N., Superintendent (interns, 2 residents).

CONNECTICUT

St. Vincent's Hospital, Bridgeport. Capacity, 325; admissions, 9,000. Sister Louise, Superintendent (3 interns).

ILLINOIS

Belmont Community Hospital, Chicago. Capacity, 125; admissions, 3,399. Mrs. Gertrude F. Scofield, Superintendent (3 interns).

Englewood Hospital, Chicago. Capacity, 187; admissions, 5,263. A. R. Zeiter, Superintendent (4 interns).

Hospital of St. Anthony de Padua, Chicago. Capacity, 269; admissions, 7,041. Sister Alberta, R.N., Superintendent (3 interns).

St. Bernard's Hospital, Chicago. Capacity, 242, admissions, 7,401. Mother Cecelia Murray, R.N., Superintendent (intern).

St. Elizabeth Hospital, Chicago. Capacity, 307; admissions, 10,777. Sister M. Vetusa, Superintendent (3 interns).

INDIANA

St. Joseph's Hospital, South Bend. Capacity, 192; admissions, 4,494. Sister Mary Ellen, R.N., Superintendent (2 interns).

KENTUCKY

SS. Mary and Elizabeth Hospital, Louisville. Capacity, 205; admissions, 4,817. Sister Ludovica, R.N., Superintendent (intern).

MAINE

Eastern Maine General Hospital, Bangor. Capacity, 243; admissions, 5,467. Dr. Allan Craig, Medical Director (4 interns).

MARYLAND

Maryland General Hospital, Baltimore. Capacity, 264; admissions, 5,509. Stuart B. Crawford, Superintendent (6 interns).

MICHIGAN

St. Joseph's Mercy Hospital, Ann Arbor. Capacity, 250; admissions, 5,937. Sister M. Philippa, Superintendent (interns, residents).

Saginaw General Hospital, Saginaw. Capacity, 166; admissions, 4,896. Kate J. Hard, Superintendent (2 interns).

St. Mary's Hospital, Saginaw. Capacity, 204; admissions, 5,318. Sister Electa, R.N., Superintendent (2 interns, 1 resident).

MINNESOTA

St. Mary's Hospital, Minneapolis. Capacity, 320; admissions, 9,291. Sister M. Conchessa, Superintendent (6 interns).

MISSOURI

St. Joseph's Hospital, St. Joseph. Capacity, 168; admissions, 3,022. Sister Emile, R.N., Superintendent (1 intern, 1 resident).

St. Louis City Hospital, St. Louis. Capacity, 1,127; admissions, 15,013. Mr. Clinton F. Smith, Superintendent (residents—med., OBG).

MONTANA

Murray Hospital Clinic, Butte. Capacity, 120; admissions, 3,043. Mr. W. H. Rex, Business Manager (2 interns).

NEW JERSEY

St. Peter's General Hospital, New Brunswick. Capacity, 227; admissions, 6,034. Sister R. Letellier, Superintendent (2 interns, 1 resident).

Perth Amboy General Hospital, Perth Amboy. Capacity, 197; admissions, 4,932. Mr. George C. Schicks, Superintendent (3 interns).

NEW YORK

The Kingston Hospital, Kingston. Capacity, 118; admissions, 2,839. Jessie P. Allan, Superintendent (resident—mixed).

New Rochelle Hospital, New Rochelle. Capacity, 309; admissions, 6,516. Alex E. Norton, Superintendent (resident).

Jewish Memorial Hospital, New York. Capacity, 217; admissions, 4,994. Louis Miller, Superintendent (3 interns).

New York Infirmary, New York. Capacity, 160; admissions, 2,595. Miss M. Marion Smith, Administrator (5 interns, residents—Med. OB. Surg.—women only).

OHIO

St. Mary's Hospital, Cincinnati. Capacity, 230; admissions, 5,114. Sister Theonilla, R.N., Superintendent (4 interns).

Lutheran Hospital, Cleveland. Capacity, 137; admissions, 4,121. Lee S. Lampher, Superintendent (3 interns).

PENNSYLVANIA

The Woman's Hospital of Philadelphia, Philadelphia. Capacity, 166; admissions, 2,887. Dora Ruland, M.D., Medical Director (3 interns, resident—medicine).

Passavant Hospital, Pittsburgh. Capacity, 120; admissions, 2,203. Sr. Martha Pretzlaff, Superintendent (3 interns).

Sewickley Valley Hospital, Sewickley. Capacity, 185; admissions, 3,931. Miss Helen Pratt, Superintendent (4 interns).

RHODE ISLAND

Charles V. Chapin Hospital, Providence. Admissions, 760 (psy.). Dr. William Hindle, Superintendent (resident—psychiatry).

TENNESSEE

St. Joseph Hospital, Memphis. Capacity, 297; admissions, 8,670. Sister M. Sponsaria, Superintendent (4 interns).

UTAH

St. Mark's Hospital, Salt Lake City. Capacity, 164; admissions, 4,286. O. V. Wardrop, Superintendent (4 interns).

VIRGINIA

Norfolk General Hospital, Norfolk. Capacity, 333; admissions, 9,584. Mr. W. P. Earngey, Superintendent (interns).

WASHINGTON

Sacred Heart Hospital, Spokane. Capacity, 368; admissions, 9,274. Sister Henrietta, Superior (8 interns).

St. Joseph's Hospital, Tacoma. Capacity, 344; admissions, 6,853. Sister M. Patricia Francis (interns).

WEST VIRGINIA

Wheeling Hospital, Wheeling. Capacity, 236; admissions, 4,587. Sister Mary Ruth, Administrator (interns).

MISCELLANEOUS

SOVIET SURGERY

[NOTE.—*The following article was received from Moscow via Press Wireless from the Soviet Scientists' Antifascist Committee, Academician Sergei Spasokukotsky.*]

During the war of 1914-1918 and the civil war which followed, the insufficiency of surgical work in prerevolutionary Russia was revealed. Russian surgeons were enthusiastic and possessed sufficient knowledge to enable them to organize the surgical profession. The theoretical training of a high order which obtained in Russian universities made this easier. The Soviet government met the demands of surgical clinics and hospitals. Special factories were established for the production of x-ray apparatus and all kinds of surgical instruments and hospital equipment. Specialization in various branches of surgery was introduced, and the number of medical colleges and students in training was greatly increased. Postgraduate institutes for doctors were organized in all capitals, republics and district centers in place of the single college that formerly existed in Leningrad. In place of the specialized surgical institute that existed—the Orthopedic Institute, Leningrad—the following specialized institutes were established: general surgery, gynecology, urology, ophthalmology, x-ray, serum and other institutes. In these institutes free treatments were given, providing a basis for rapid development of surgery.

ABDOMINAL SURGERY

Until 1918 operations for hernia and appendicitis were conducted only between attacks. Operations on the liver, stomach and kidneys were performed only in university clinics. By 1924, when surgical congresses were resumed, great advances had been made and operations of this type were being carried out by many surgeons.

Professor Ushensky announced that he had performed fifteen hundred operations on the stomach and intestine; he is by no means the only surgeon in this field. Material has been accumulated on the shortcomings of these operations and the trend favors resection of ulcers.

By 1936 first aid service had been organized for all Soviet cities. This also opened an era of urgent surgical treatment for ulcers of the stomach and intestine and for acute appendicitis with immediate closing of the wound. Successes achieved in this field made urgent surgical treatment popular in village hospitals. In Paris in 1930 S. Yudin read a paper on fifteen hundred resections for perforating ulcers. The death rate for operations on the appendix was very small, no more than 2 per cent. Operations for abdominal hemorrhages were less successful. There were but few surgeons who favored this operation, including Spasokukotsky and S. Yudin. Later success with this operation was connected with widespread employment of blood transfusions.

In the year preceding the war a large number of branches of the Central Institute for Blood Transfusions (Prof. A. Bogdasarov) were reestablished and arrangements made for preserving blood. The methods had been thoroughly studied and proved before the war in hundreds of thousands of cases in various diseases. During the present war the whole front and all the hospitals have been supplied with all the blood they ask for. In 1928 a proposal was made that surgeons wash their hands in 0.5 per cent solution of ammonia (Spasokukotsky, Kochergin). The proposal was widely adopted.

More than a thousand surgeons all over the Soviet Union have confirmed the value of the method and at the same time have shown that suppuration intervenes in only 2 or 3 per cent of abdominal operations.

A large number of successful operations for cancer of the lower part of the alimentary canal—larger than any other country—have been carried out by using artificial alimentary tubes.

THORACIC SURGERY

During the war of 1914-1918 there were a large number of deaths from pulmonary wounds and complications. This attracted wide attention among surgeons (Burdenko, Spasokukotsky, Grekov, Linberg). They established the fact that pleurisy is a secondary phenomenon which heals normally when the original nidus has been properly treated. When these methods were applied to war conditions a greatly decreased death rate ensued. In a special hospital for thoracic surgery Linberg reduced the death rate 5 per cent in the wards as early as 1939.

CRANIAL SURGERY

A method of healing brain suppuration by perforation has been developed and has met with considerable success. Bakulev developed a strict routine, encephalography, punching the skull, drawing off pus and replacing it with air.

A number of neurosurgical institutes (Burdenko, Bakulev, Polenov, Geimanovich and Shamov) have been established, and surgeons' views on the subject have been changed. The five thousand operations performed in the Burdenko Institute with 7 per cent mortality are an inspiration to Soviet surgeons.

The danger of tetanus has been removed completely. Gas gangrene has almost disappeared. The precept "closed wounds" during the war of 1914-1917 was taken up later by first aid stations, where operations were done and wounds immediately stitched. All doctors have adopted these methods with excellent results (85 to 90 per cent). Primary treatment with excision of all shattered bloodless tissue attained even greater significance. This accounts for the light form of gas gangrene and the reduction in the number of amputations and made possible the use of plaster splints, invaluable when patients are being transported.

With fractures surgeons now think not only of setting bones correctly but also of the most rapid way to return the limb to its functions.

HUGE HOSPITAL PLANE DEDICATED

The *Spirit of Norwood,* the Douglas Skymaster purchased with war bonds sold during the month of October in the Norwood Park area (Ill.), was dedicated on November 3 at the Douglas plant. The plane made its army acceptance flight on November 2 over the neighborhoods where the bond buyers reside. The hospital ship is equipped to carry 52 litter beds, 4 doctors and a crew of 6. The cost of the ship was $500,000, but the communities raised $766,880. Picture postcards of the ship will be sent to the 1,200 men and women in service from the area to show them "we're doing what we can here at home." The drive included the communities of Edgewood, Rosedale and Higgins as well as Norwood Park, Ill.

PUBLIC HEALTH UNDER HITLER

The Duisburg edition of the *National Zeitung* of August 7 features a notice reminding the population once more that midwives, dental practitioners, nurses, masseurs and fumigation staffs are not allowed to leave the town without permits from the Health Office and their professional organizations.

NPD of August 21 reports from Kiev that the building of a number of hospitals in the Ukraine has begun as part of the extensive scheme for improving health conditions in the occupied eastern territories. The first seven hospitals in the biggest towns of the country will be ready by Christmas.

Le Petit Dauphinois of August 21 published the following official notice: "The Regional Director of Public Health of Lyons informs doctors in the departments belonging to the Lyons health area that antipoliomyelitis serum may be obtained in the case of an emergency day and night, including Sundays, from the health inspector of the Rhone and Lyons region."

According to *Le Petit-Journal* of August 24, at Grasset's request Professors Alajouaine and Rohmer, the well known poliomyelitis specialists, lectured to a large audience of local doctors in Clermont-Ferrand hospital lecture room in order to enable them to fight the disease efficiently.

Dnes of July 3 states that the number of doctors in Bulgaria is about 3,500.

ORGANIZATION SECTION

BRITISH MEDICAL ASSOCIATION ON BEVERIDGE PLAN

The government has promised to issue a "white paper" setting forth the official proposals in regard to the medical provisions of the Beveridge report and to give opportunity for full discussion by the medical profession before any legislation is enacted. This "white paper" had not appeared when the annual representative meeting of the British Medical Association, which is comparable to the House of Delegates of the American Medical Association, met September 21-23. Although much of the time of the meeting was given to discussion of "The Future of Medical Services," there was no definite legislative proposal available for consideration, and action was limited to statements of principles and general positions. The attitude of the meeting was shown by a vote of 200 to 10 in favor of the resolution that "In the opinion of the Representative body the creating of a whole time salaried state medical service is not in the best interest of the community."

The Representative Committee, which had been appointed to study the whole subject and which had previously submitted a report, presented its recommendations, which, with some amendments, were adopted in the following form: [1]

(A) (To be embodied in a preamble recalling the principles set out in the "General Medical Service for the Nation.") 1. The system of medical service should be directed to the achievement of positive health and the prevention of disease no less than to the relief of sickness. 2. There should be available for every individual the services of a general practitioner or a family doctor of his own choice. 3. Consultants and specialists, laboratory services, and all necessary auxiliary services, together with institutional provision when required, should be available for the individual patient, normally through the agency of the family doctor. 4. The several parts of the complete medical service should be closely coordinated and developed by the application of a planned national health policy acceptable to the profession as a whole.

(B) The health of the people depends primarily on the social and environmental conditions under which they live and work, on security against fear and want, on nutritional standards, on educational facilities and on the facilities for exercise and leisure. The improvement and extension of measures to satisfy these needs should precede or accompany any future organization of medical services.

(C) The efficiency of a country's medical services, both preventive and curative, depends on the available medical and scientific knowledge, on the character and extent of medical education, on the sufficiency and quality of personnel, on facilities for treatment and on the absence of any economic barriers that impede the utilization of such services. Thus, in order to improve the country's medical services, the facilities and resources for medical research should be greatly increased and methods devised for their adequate application; medical education, both undergraduate and postgraduate, should be maintained on a high standard and be adapted to modern needs; there should be sufficiency of personnel and institutional accommodation; and wherever economic barriers prevent an individual taking advantage of medical services such barriers should be removed.

(D) Subject to these general and overriding considerations, the functions of the state should be to coordinate existing provision, both official and nonofficial, to augment it where necessary and to secure that it is available without economic barrier to all who need it. The state should confine itself within these wide limits, invading the personal freedom of both citizen and doctor only to the extent which the satisfaction of these functions demands.

(E) It is not in the public interest that the state should convert the medical profession into a salaried branch of central or local government service. The state should not assume control of doctors rendering individual or personal health service. The profession rejects any proposal for the control of the future medical service by local authorities as at present constituted.

(F) Free choice as between doctor and patient should be preserved as a basic principle of future health services, and no administrative structure should be approved which does not both permit and encourage such free choice.

(G) It is not in the public interest that the state should invade the doctor-patient relationship. The loyalty and obligation of a doctor rendering personal health service to an individual patient should be to that patient and to none other.

(H) Free choice of doctor should be reinforced by a method of remuneration which relates remuneration to the amount of work done or the number of persons for whom responsibility is accepted.

(I) Every member of the community should be free to consult the doctor of his choice either officially, as when he consults the doctor he has selected under an official service, or privately, as when he consults some other doctor, whether that doctor is a member of an official service or not. Nothing should be done to encourage the splitting of the medical profession into two groups—the official doctors and the nonofficial doctors.

(J) Consultants and specialists should normally be attached to the hospital. For those persons who wish to be treated in private accommodations, whether part of a hospital or not, private consulting practice should continue.

(K) The central administrative structure should be a corporate body concerned only with civilian health services and should be responsible for all civilian health services. This central administrative body should be advised on medical matters, including personnel, by a medical advisory committee representative of the medical profession which should be at liberty to publish its findings. Locally, new administrative bodies, responsible to the central authority, should cover wide areas and should be representative directly or indirectly of the community served and, in appropriate proportion, of the local medical profession and voluntary hospitals. They should be advised on medical matters, including personnel, by local medical advisory committees representative of the local medical profession which should be at liberty to publish their findings. These administrative changes should be regarded as foundation changes to be agreed before other changes are initiated.

(L) All branches of medical practice should be regarded as a single service, and it is undesirable that a detailed scheme for general practitioners should be framed and put into operation without corresponding arrangements for other branches of practice.

(M) Pending the consideration and completion of the foundation administrative changes mentioned in K, as a step toward the satisfaction of assumption B, there should be extension of national health insurance to include dependents of insured persons and others of like economic status and to cover consultant and specialist services and laboratory and hospital facilities as well as general practitioner service. The service should be improved from time to time as recommended by the profession. Those persons with incomes above an agreed limit could, if Parliament decides to make the service available to every member of the community, be permitted to become voluntary contributors to the extended service. A reconstruction of insurance committees would be necessary.

(N) There should be initiated, by arrangement and agreement between the government and the profession, organized experiments in the methods of practice, such as group practice, including health centers of different kinds, which should extend to general practitioner hospital units attached to general hospitals. Future developments in group practice should depend on the results of such clinical and administrative experimentation.

1. Lancet **2**: 425 (Oct. 2) 1943.

OFFICIAL NOTES

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

Dr. Walter L. Bierring, secretary of the Federation of State Medical Boards, has reported that all of the state medical boards requiring the completion of a twelve months internship for medical licensure have approved by official action the acceptance of a nine months internship in a civilian hospital as a war emergency measure, accepting subsequent medical service with the armed forces in lieu of the three months that could not be completed in a civilian hospital.

Among the actions taken at the meeting of the Council on Medical Education and Hospitals on November 7 were the following:

The Annual Congress on Medical Education and Licensure will be held at the Palmer House in Chicago on Feb. 14 and 15, 1944.

Regarding the selection of medical students, the Council believes that it is essential to satisfactory programs of medical education that:

1. Mutually agreeable relations exist between the student and the school; hence that every effort should be made to allow the element of choice to operate between the student and the medical school in the decision as to his assignment.

2. The group charged with the duty of selecting students accepted for medical education include representatives of the medical schools of the district, and that the actual assignment of a student to a specific medical school be subject to the approval of that school.

3. The general principles herewith suggested be as nearly uniform as possible throughout the country.

The study of postwar hospital facilities for the training of returning medical officers will be continued. Information received to date indicates that large numbers of places will be made available. A preliminary report of the findings will be published shortly.

The University of Texas Medical Branch, at Galveston, was removed from its probationary status.

The Bowman Gray School of Medicine, at Winston-Salem, N. C., was transferred to the list of medical schools approved by the Council for the full four year course. This school has been an approved school of the basic medical sciences.

The following internships and residencies were approved by the Council:

Hospitals Approved for Internships

Lutheran Hospital, Fort Wayne, Ind.
St. Joseph Hospital, Fort Wayne, Ind.
Flint Goodrich Hospital, New Orleans.
St. Joseph's Mercy Hospital, Ann Arbor, Mich.
Memorial Hospital, New York City.
Easton Hospital, Easton, Pa.
Hospital of St. Vincent de Paul, Norfolk, Va.

Approved Residencies

Anesthesiology
Mount Sinai Hospital, New York City.
Temple University Hospital, Philadelphia.

Internal Medicine
Chesapeake and Ohio Hospital, Huntington, W. Va.
Gouverneur Hospital, New York City.
Hospital of the Woman's Medical College, Philadelphia.

Mixed Residencies
Wyandotte General Hospital, Wyandotte, Mich.
Wyoming County Community Hospital, Warsaw, N. Y.
Mercy Hospital, Charlotte, N. C.
Grace Hospital, Cleveland.
Woman's Hospital, Cleveland.

Neurosurgery
University of Virginia Hospital, Charlottesville, Va.

Otolaryngology
Hospital of the Protestant Episcopal Church, Philadelphia.

Surgery
St. Mary's Hospital, San Francisco.
Charles Godwin Jennings Hospital, Detroit.
Gouverneur Hospital, New York City.
Hospital of the Protestant Episcopal Church, Philadelphia.
Johnston-Willis Hospital, Richmond, Va.
St. Luke's Hospital, Milwaukee.

Tuberculosis
Lake County Tuberculosis Sanatorium, Waukegan, Ill.
Hamilton County Tuberculosis Sanatorium, Cincinnati.

Schools for Clinical Laboratory Technicians Approved

Jefferson Hospital, Birmingham, Ala.
St. Francis Hospital, Evanston, Ill.
Salem Hospital, Salem, Mass.
University Hospital, Ann Arbor, Mich.
St. Anthony's Hospital, St. Louis.
Newark City Hospital, Newark, N. J.
Presbyterian Hospital, Newark, N. J.
Philadelphia General Hospital, Philadelphia.
St. Agnes Hospital, Philadelphia.
Medical and Surgical Memorial Hospital, San Antonio, Texas.
University of Vermont College of Medicine, Burlington, Vt.

School for Physical Therapy Technicians Approved

Duke Hospital, Durham, N. C.

School of Occupational Therapy Approved

Richmond Professional Institute, Richmond, Va.

School for Medical Record Librarians Approved

Mercy College, Detroit.

VICTOR JOHNSON, M.D., Secretary.

THE 1944 CHICAGO SESSION

The Scientific Exhibit

The Scientific Exhibit will be held on the fourth floor of the Palmer House in the Exhibition Hall and adjoining spaces. The Board of Trustees has authorized three special exhibits on fractures, burns and the newer anti-infective agents. Other features will include groups of exhibits on heart disease, tropical medicine, industrial health and poliomyelitis.

Representatives to the Scientific Exhibit have been appointed by each section of the Scientific Assembly and they are already at work to make the Scientific Exhibit a noteworthy demonstration in graduate medical instruction.

Application blanks for space may be obtained by writing to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago 10, Ill.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Change in Status.—Subcommittee No. 2 of the House Committee on the Judiciary held public hearings, November 10, on H. R. 786, the Tolan bill to permit chiropractors to treat the beneficiaries of the United States Employees' Compensation Act. Dr. Barney J. Hein of Toledo, Ohio, and Dr. Wilburt C. Davison, dean, Duke University School of Medicine, appeared as witnesses for and at the request of the American Medical Association in opposition to the enactment of the bill. Representative A. L. Miller of Nebraska, a doctor of medicine and a former health officer of his state, also protested against the bill, the protest being lodged at the request of the Nebraska State Medical Association.

Bills Introduced.—S. 1506, introduced, by request, by Senator Clark, Missouri, provides for further rehabilitation of honorably discharged World War II veterans. S. 1507, introduced, by request, by Senator Clark, Missouri, and H. R. 3634, introduced by Representative Rankin, Mississippi, propose to make further provision for the education of honorably discharged World War II veterans.

S. 1509, introduced by Senator Thomas, Utah, provides for the education and training of members of the armed forces and the merchant marine after their discharge or conclusion of service.

DISTRICT OF COLUMBIA

Bill Introduced.—H. R. 3619, introduced by Representative Randolph, West Virginia, proposes to amend the existing law regulating the disposal of dead human bodies in the District of Columbia.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Dr. William Dock Named Professor of Medicine.—Dr. William Dock, since 1940 professor of pathology at Cornell University Medical College, New York, has been appointed professor and chairman of the department of medicine at the University of Southern California School of Medicine, Los Angeles. Prior to joining the Cornell faculty, Dr. Dock was assistant professor of medicine at Stanford University School of Medicine and later professor of pathology.

Typhoid Grandmothers.— The Los Angeles City Health Department has reported recently that, of 21 cases of typhoid reported to that department in the last sixteen months, 11 have been traced definitely to carriers, according to *California's Health*. In 10 of these 11 cases, the infection had been acquired from grandmothers. It is suggested that several factors may be involved: (1) that these grandmothers lived through a period in which typhoid was rampant in the United States, (2) that grandmothers are frequently active in the preparation of food in the home and (3) that they lived in a day and age when sanitation was not considered of as great importance as it is considered today. It is known that about 2 per cent of persons who have typhoid become permanent carriers. In the course of the department's investigation it was found that a 68 year old grandmother who had typhoid at the age of 17 was responsible for 4 cases of the disease that appeared within her immediate family during the last forty years, 1 of which resulted fatally.

GEORGIA

Personal.—Dr. Young H. Yarbrough, assistant superintendent of the Milledgeville State Hospital, Milledgeville, has been appointed medical superintendent to succeed Dr. Lovick P. Longino, effective September 1. The latter, who has been connected with the hospital since 1906, resigned because of ill health.

ILLINOIS

License Restored.—The Illinois State Board of Registration in Medicine has restored the license to practice medicine in Illinois of Dr. Delbert R. Blender, Chicago. Dr. Blender's license had been revoked on June 22.

Chicago

Annual Meeting of Institute of Medicine.—The twenty-eighth annual meeting of the Institute of Medicine of Chicago will be held at the Palmer House, December 7. Dr. Frederick B. Noyes will deliver the presidential address on "Personal Recollections of a Leader, Greene Vardiman Black: His Development and Influence."

Changes in the Faculty at Loyola.—George F. Simmons, Ph.D., and Arthur J. Gatz, Ph.D., are among the new appointments to the Loyola University School of Medicine. Promotions at the school include:

David S. Jones, Ph.D., to assistant professor of anatomy.
Dr. John L. Keeley to associate clinical professor of surgery.
Dr. Mary C. Patras to assistant professor of physiology.
Dr. George A. Hellmuth to assistant clinical professor of medicine.
Dr. Leo A. Kaplan to assistant clinical professor in neurology and psychiatry.

Alumni Election.—On November 4, Dr. Howard B. Carroll was reelected president of the Northwestern University Medical Alumni Association for the third term. Other officers are Drs. Clarence G. Shearon, vice president in charge of foundation and century plan, Frederick W. Merrifield, vice president in charge of activities, Sumner L. S. Koch, vice president in charge of achievement, Everett C. Moulton, Fort Smith, Ark., vice president in charge of placements, Samuel C. Stanton, Hinsdale, Ill., statistician, and Harold E. Davis, secretary and treasurer.

Dr. Piszczek Surveys Poliomyelitis Epidemic Areas.—At the request of the National Foundation for Infantile Paralysis, Dr. Edward A. Piszczek, director of the Cook County Public Health Unit, started on November 1 to survey the states included in the recent poliomyelitis epidemic areas. The purpose of the survey is to observe the treatments and treatment facilities in the various areas with the objective, it is reported, of standardizing the treatment. The states which Dr. Piszczek will visit include Kansas, Colorado, Utah, Washington, Oregon, California, Arizona, Texas, Oklahoma and Arkansas.

KENTUCKY

First Annual Meeting on Mental Hygiene.—The Kentucky Mental Hygiene Association held its first annual meeting in Louisville on November 19. On September 25 the society held the first statewide mental hygiene meeting in Kentucky, also in Louisville, at which Dr. Edward E. Landis, associate professor of psychiatry, University of Louisville School of Medicine, discussed a general mental hygiene program and emphasized the importance of public and private organizations working together and the collaboration between educational, professional and religious groups. Other speakers on the program included W. A. Frost, state commissioner of welfare, Dr. S. Spafford Ackerly, director of the mental hygiene clinic, Louisville, Dr. Addie M. Lyon, Frankfort, director of the state division of hospitals and mental hygiene, and Dr. Isham Kimbell, superintendent of the Central State Hospital, Lakeland. Rev. George J. O'Bryan, chaplain of St. Joseph Hospital, Lexington, is president of the state mental hygiene association. Since the organization of the state group, seven counties have already become represented in its membership. Fayette County has organized the first county unit with headquarters in Lexington. Jefferson County, which has the largest population of any Kentucky county, has a representation of 23 members, who contemplate early organization of a unit in Louisville. The Kentucky Mental Hygiene Association was organized in response to a request made by Dr. Lyon in his address before the Kentucky Psychiatric Association in Louisville in January 1942, in which he emphasized the need for a mental hygiene association that would extend into every section of the state with a program that could be adapted to the needs and resources of the varying communities. Membership in the association is composed of lay and professional persons who are interested in promoting mental health. There are three classifications of members: active members who pay an annual membership fee of $1.50 (50 cents of which is returned to the county unit), patron members who contribute $100 or more, and honorary membership, conferred by a two-thirds vote of the membership. All members enrolling within the first twelve months are charter members.

MARYLAND

Fifty Years of Medicine at Johns Hopkins.—On October 2 Johns Hopkins University School of Medicine, Baltimore, observed its fiftieth anniversary. In view of the war, no formal exercises were held to celebrate the event; instead, a booklet was published and distributed to graduates and friends of the school as a memento of the occasion. The booklet contains a brief account of the founding of the school and its achievements during the last fifty years and photographs of illustrious physicians and scientists, present and former members of the staff, who participated in the school's progress. It discusses the development of the various departments individually and the scope of the school as a whole, pointing out that the opening of the medical school marked a new departure in medical education in America because it was the first medical school in this country to open with all its professors in the preclinical branches on a full time or university basis.

MICHIGAN

University Awards Kellogg Prize.— Dr. Henry E. C. Everett, a member of the 1943 graduating class, University of Michigan Medical School, Ann Arbor, was recently presented with the Kellogg Medical Prize for highest scholastic achievement. Dr. Everett will serve his internship at the City Hospital, Cleveland.

Physicians Required at High School Football Games.—The Detroit Board of Education requests attendance of a physician at every high school football game. Compensation has been provided and a schedule has been set up. The need for physicians at these games was published in the form of a request in the *Detroit Medical News*.

Special Meeting to Discuss Wagner-Murray-Dingell Bill.—The Wayne County Medical Society has called a special meeting for November 29 to discuss the Wagner-Murray-Dingell legislation. The students of Wayne University College of Medicine, Detroit, have been invited to attend the meeting as well as intern and resident staffs of local hospitals.

State Medical Board Changes.—Dr. Elmer W. Schnoor, Grand Rapids, was elected president of the Michigan State Board of Registration in Medicine for a third term at an annual meeting of the board in Lansing. Dr. David C. Eisele, Ironwood, has been named a member of the board to succeed Dr. Andrew C. Roche, Calumet, for a four year term expiring Sept. 30, 1947.

NEW JERSEY

Emergency Hospital Unit Created.—The second public health unit in the program to organize affiliated hospital units of the Emergency Medical Service of the U. S. Office of Civilian Defense was established at the Newark Beth Israel Hospital recently. The first unit was created in the Albany Hospital, Albany, N. Y. The project is under the auspices of the U. S. Public Health Service and covers the activation of physicians, men over 50 or those who were rejected for the armed forces, as a military unit in case of air raid emergency or in case the flow of wounded from the various theaters of war overtaxes the regular medical corps staff. Under the setup the participating members receive commissions in the U. S. Public Health Service.

NEW YORK

Personal.—Dr. Theodore G. Klumpp, president of the Winthrop Chemical Company, Rensselaer, on November 3 received the honorary degree of doctor of science from the Philadelphia College of Pharmacy and Science in recognition of his "distinguished services in medicinal chemistry."

Graduate Lecture.—The state medical society and the state department of health sponsored a graduate lecture on "Rheumatic Fever—Rheumatic Heart Disease" before the Jefferson County Medical Society, Watertown, November 11. The lecture was given by Dr. John G. Fred Hiss, professor of clinical medicine, Syracuse University College of Medicine, Syracuse.

New York City

Course in Occupational Dermatoses.—A lecture course on occupational dermatoses will be held at the New York Academy of Medicine, December 6-11, under the auspices of the dermatoses investigations section, division of industrial hygiene, National Institute of Health, Bethesda, Md., U. S. Public Health Service. Louis Schwartz, medical director, U. S. P. H. S., chief of the section on dermatoses investigation, and the following members of his staff will deliver the lectures: Samuel M. Peck, senior surgeon, John E. Dunn Jr., surgeon, James Q. Gant Jr., surgeon and Howard S. Mason, associate chemist. James G. Townsend, medical director, chief of the division of industrial hygiene, National Institute of Health, will deliver the opening address. All are of the U. S. P. H. S.

Lectures to the Public.—The New York Academy of Medicine started its ninth series of lectures to the public on November 18 with the presentation of the Linsly R. Williams Memorial Lecture by Sir Gerald Campbell, British minister and special assistant to the British ambassador, on "Effect of Science on Human Beings." Other lectures in the series are:

Lieut. Col. Thomas T. Mackie, M. C., A. U. S., Epidemics and War, December 14.
Charles Glen King, Ph.D., New York, The Ninety-Fourth Anniversary Discourse of the New York Academy of Medicine, Food and Civilization, January 27.
Dr. Reginald Fitz, Boston, Medicine and the Changing World, February 24.
Dr. Colin M. MacLeod, New York, The Past, Present and Future of Chemotherapy, March 23.
Dr. Edward A. Strecker, Philadelphia, the George R. Siedenburg Memorial Lecture, Have We Averted the Rule of King Mob? April 27.

Clement Cleveland Award Goes to Frederick Hoffman.—On November 2 the Clement Cleveland Award for 1943 was awarded in absentia to Frederick L. Hoffman, LL.D., San Diego, for many years consulting statistician and a third vice president for the Prudential Life Insurance Company, Newark, N. J. The medal, which is presented for "outstanding service in the cause of cancer control," was received for Dr. Hoffman by Dr. Howard C. Taylor, who in his acceptance address stemmed the beginning of the national society to a paper read by Dr. Hoffman on May 7, 1913 at a meeting of the American Gynecological Society. An exhibit at the meeting also credits Dr. Hoffman with the development of this movement. The annual dinner of the New York Cancer Committee was given this year in honor of the founders of the American Society for the Control of Cancer. The speakers included Clarence C. Little, Sc.D., managing director, who reviewed the national organization's history.

New City Division of Nutrition.—The New York City Department of Health has created a new division of nutrition and appointed eight nutritionists to supervise the intensified nutritional program of the health department which has been necessitated by the war and current food shortages. Mrs. Gertrude Gates Mudge has been named supervising nutritionist. According to Dr. Ernest L. Stebbins, city health commissioner, one of the projects to be conducted will be the development of a staff education program for physicians and nurses in the health department. Specialized nutrition instruction will be provided with emphasis on timely food information which the physicians and public health nurses can pass on to their patients and to persons with whom they come in contact during their professional visits. Working through the health department's district health centers, the nutritionists will also cooperate with public and private social and welfare agencies and the New York City food and nutrition program in the development of neighborhood programs throughout the city.

OHIO

One Hundred Years of Medicine.—The Cleveland Health Museum has given over its entire second floor to an exhibit reviewing the last hundred years of medicine in Cleveland as a part of the centennial celebration of Western Reserve University School of Medicine. Dr. Howard Dittrick, director of the museum of historical medicine of the Cleveland Medical Library Association, is in charge of the display. Instruments, books, fee bills and documents of the country doctor of a hundred years ago feature the exhibit. A preview was held on October 26 under the sponsorship of the Western Reserve Historical Society, the Museum of Historical Medicine of the Cleveland Medical Library Association and the Cleveland Health Museum. Chauncey D. Leake, Ph.D., dean of the University of Texas Medical Branch, Galveston, spoke on "Milestones in Medicine." The office of a Cleveland doctor, Abner Webb, 1846, is reconstructed with the help of old letters and prints, and with many of his own furnishings. A news item announcing the centennial program appeared in THE JOURNAL, October 16, page 430.

OKLAHOMA

Portrait of Dr. Garabedian.—A portrait of the late Dr. G. A. Z. Garabedian has been presented to the Tulsa County Medical Library by Mrs. Garabedian. The work was executed by Diane Travis and recently was hung at Hillcrest Hospital. An endowment fund bearing the name of the late physician was established shortly after his death in 1938 by Mrs. Garabedian.

The Annual Leroy Long Lecture.—Dr. Harry L. Alexander, professor of clinical medicine, Washington University School of Medicine, St. Louis, presented the fourth annual Leroy Long Memorial Lecture at the University of Oklahoma School of Medicine, Oklahoma City, recently on "The Present Status of Chemotherapy in the Treatment of Diseases." The lecture is sponsored by the alumni and undergraduates of Phi Beta Pi as a memorial to the late Dr. Leroy Long, Oklahoma City, dean of the medical school from 1915 to 1931.

OREGON

Meeting on Poliomyelitis.—The University of Oregon Medical School, Portland, and the Multnomah County Chapter for Infantile Paralysis recently held a symposium on the newer concepts of the management of poliomyelitis. The course was designed to help in handling existing cases. Only basic data were presented. Speakers included Mr. E. T. Hedlund, postmaster, and Drs. Adolph Weinzirl, Paul V. Woolley Jr., Lawrence Noall and Lewis D. Clark.

PENNSYLVANIA

Physician Observes Ninety-Third Birthday.—Dr. George B. Woods, Washington, celebrated his ninety-third birthday, September 7. For the past sixty-nine years Dr. Woods has practiced in Washington County and for more than thirty years has been physician to the Washington County Home and Poor Farm, a position he still holds, having given up all other practice.

State Psychiatric Meeting.—Dr. George W. Smeltz, Pittsburgh, was named president-elect of the Pennsylvania Psychiatric Society at its fifth annual dinner meeting in Philadelphia, October 7, and Dr. Ralph L. Hill, Wernersville, was installed as president. Dr. Le Roy M. A. Maeder, 206 South 13th Street, Philadelphia 7, is the secretary-treasurer. Speakers included Mr. John Corcoran, radio commentator and writer, who discussed "Today," and Dr. Oliver Spurgeon English, Philadelphia, "The Referral Center for Selective Service in Philadelphia."

Philadelphia

The Pancoast Lecture.—Dr. Dallas B. Phemister, Thomas D. Jones professor of surgery, University of Chicago School of Medicine, delivered the annual Pancoast Lecture of the Philadelphia Roentgen Ray Society, November 4, on "Disturbances Arising from Interruption of Circulation in the Skeletal System." The lectureship was established in 1941 in honor of the late Dr. Henry K. Pancoast, professor of radiology at the University of Pennsylvania School of Medicine.

Trust Fund for Needy Patients Established.—William H. Donner, retired industrialist, has given a $400,000 trust fund to the University of Pennsylvania to establish the Donner Fund for Needy Patients. The income from the fund will be used to extend to needy patients special facilities additional to those normally supplied by the hospital. Part of the income may be used for assistance in clinical research problems and for special experiments in those aspects of hospital administration that have to do principally with the welfare of patients. Surveys may be conducted, investigations of routine practices made and further special training of personnel undertaken, including grants to graduate fellows in nursing, and, for trial periods, new administrative procedures that have direct bearing on the welfare of the patients may be developed. The specific objective of the fund is to assist needy patients who require extraordinary services not usually supplied by a hospital. Mr. Donner gave $2,000,000 in 1932 to found the International Cancer Research Foundation, Philadelphia.

Professorship of Medicine to Be Created.—The Frank Wister Thomas Professorship of Medicine is to be established at the University of Pennsylvania School of Medicine under the will of Mrs. Maria G. B. Thomas of Philadelphia, who died on September 15, according to the *Pennsylvania Medical Journal*. The professorship will be a memorial to Mrs. Thomas's husband, Dr. Frank W. Thomas, who died on Jan. 19, 1928. According to the will, most of the $200,000 estate is left ultimately to create the new chair. The residue is bequeathed to the university toward the endowment, and trust funds amounting to $50,000 will be added to it as the beneficiaries die, until $200,000 is accumulated. The holder of the professorship shall be the person who is recognized by the trustees as the head or chief professor of medicine at the medical school. If the endowment exceeds the amount necessary to establish the professorship, or if the chair becomes temporarily vacant, one or more temporary Frank Wister Thomas fellowships in medicine are to be set up. Any excess over the $200,000 limit fixed for the professorship is bequeathed to Germantown Dispensary and Hospital.

SOUTH CAROLINA

State Venereal Hospitals to Be Relocated.—Relocation of two of the state's three venereal disease hospitals to place all closer to Columbia was announced in newspaper reports recently. The Pontiac quarantine hospital for white women will be moved to Camp Victory, about 12 miles from Columbia, and the hospital for Negro women at Goldville will be moved to the old Pontiac site. The third hospital at the state prison for women will remain unchanged. The move was to be made during October.

TENNESSEE

Memorial Health Unit Established.—Dr. Warren C. Ramer, Lexington, has been placed in charge of the Blanche Bomer Morgan Memorial Health unit in Haywood County dividing his time between this unit and those in Lauderdale and Tipton counties. The Blanche Bomer Memorial Unit was established in Brownsville through the offer of L. W. Morgan to contribute $2,000 a year for a period of five years in memory of the late Mrs. Morgan, who had been interested in health education, particularly the campaign against tuberculosis. The unit's first public function was a tuberculosis clinic.

VIRGINIA

Graduate Course.—The Virginia Society of Ophthalmology and Otolaryngology will sponsor its tenth annual postgraduate course, December 7-10, in the Baruch Auditorium of the Medical College of Virginia, Richmond. Among the speakers will be Drs. Oscar V. Batson, Philadelphia, Leroy A. Schall, Boston, Henry B. Orton, Newark, N. J., Warren T. Vaughan, Richmond, John A. Kolmer, Philadelphia, Ferris Smith, Grand Rapids, Mich., John J. Shea, Memphis, Tenn., Edmund B. Spaeth, Philadelphia, Peter C. Kronfeld, Chicago, Algernon B. Reese, New York, Ramon Castroviejo, New York, and Theodore L. Terry, Boston.

State Hospital Physicians Win Research Awards.—First prize of $225 in the annual competition inaugurated early this year by the Virginia State Hospital Board went to Drs. Isadore S. Zfass and Walther Riese of the Eastern State Hospital, Williamsburg, for their "Preliminary Report of the Study of 200 Autopsy Cases at the Eastern State Hospital with Special Emphasis on Neuropathology and Brain Tumor in Old Age." Dr. Simon Coren, Central State Hospital, Petersburg, received $125 for his "Analysis of the Negro Criminal Insane in Virginia." Dr. Vincent E. Lascara, Central State Hospital, received $50 for his work on "Neurosyphilis with a Two Year Observation of the Comparative Therapeutic Effects of Inoculation Malaria and Artificial Fever Therapy." The state hospital board made the awards at its October 14 meeting. The prize winners were rated according to their merit by Dr. Winfred Overholser, St. Elizabeths Hospital, Washington, D. C. Early this year the state hospital board arranged to make financial prizes available annually to stimulate interest in professional work among physicians on the staffs of the state hospitals, exclusive of the superintendents. The prizes are given for original or meritorious papers, based preferably on observations of patients under the physicians' care (THE JOURNAL, February 27, p. 693). The competitive papers need not necessarily deal entirely with the clinical or laboratory features but may cover reclassification and deductions that have not heretofore been made.

Seaboard Medical Association Meeting.—The forty-eighth annual session of the Seaboard Medical Association of Virginia and North Carolina will be held at Richmond, Va., November 30 to December 2, with headquarters at the Jefferson Hotel, under the presidency of Dr. Charles Lydon Harrell, Norfolk, Va. A preliminary program includes, as speakers, Gov. Colgate W. Darden Jr., Richmond, and the following:

Ben Jones, American Red Cross, Camp Lee, Va., Red Cross Activities at Home and Abroad.
Dr. Antonio A. Burke, Norfolk, Remarks on Nasal Sinus Disease.
Dr. Vernon D. Offutt, Kinston, N. C., Diagnosis and Treatment of Virus Pneumonia.
Dr. Eugene L. Lowenberg, Norfolk, Eczema and Dermatitis of the Female Genitalia.
Drs. Keith S. Grimson and Gameel B. Hodge, Durham, Intestinal Obstruction.
Dr. Jacques P. Gray, Richmond, Medical Education in Wartime.
Dr. Malory A. Pittman, Wilson, N. C., Penicillin in the Treatment of Osteomyelitis and Other Inflammations.
Dr. Donnell B. Cobb, Goldsboro, N. C., Simple Method of Fracture Fixation.
Dr. James Morrison Hutcheson, Richmond, Medicolegal Aspects of Coronary Thrombosis.
Dr. Randolph B. Grinnan Jr., Norfolk, Skin Manifestations of Sulfathiazole Intoxication.
Drs. Russell V. L. Buxton, Waverly R. Payne and Morris B. Beecroft, Newport News, Va., Fake Negative Results in the Aschheim-Zondek Test.
Dr. Harry Hudnall Ware Jr., Richmond, Ectopic Pregnancy.
Dr. Charles J. Andrews, Norfolk, The Maternal Mortality Situation.

The meeting will also include a symposium on "Diarrhea" with the following members of the faculty of the Medical College of Virginia, Richmond, as speakers: Drs. John H. Scherer on "Bacillary Dysentery Amebiases"; Lee E. Sutton Jr., "Acute Gastroenteritis in Children"; Thomas Dewey Davis, "Diarrhea Associated with Organic Disease of the Colon," and Maxwell Berry Jr., "Diarrhea Associated with Functional Diseases."

WEST VIRGINIA

Personal.—Dr. Walter E. Vest, Huntington, was reelected president for a fourth term of the public health council of West Virginia at its meeting in Charleston, October 26. Dr. Vest has served continuously as president of the council since 1935. ——E. J. Hall, Buckhannon, educator, has been named as educational consultant in venereal diseases in the state department of health.

Appointments as Health Officers.—Dr. James E. Coleman, Fayetteville, has been appointed by the public health council as full time health officer of Fayette County. The council also appointed the following physicians, among others, as part time health officers:

Dr. Harry K. Owens, Elkins.
Dr. James K. Pickens, Jaeger.
Dr. Roscoe Stotts, Kenova.
Dr. Bayard L. Liggett, Mill Creek.
Dr. James A. Newcome, Keyser, Mineral County.
Dr. Ona F. Mitchell, Franklin, Pendleton County.

Venereal Treatment Center.—A medical center for the treatment of venereal diseases will be opened in an abandoned National Youth Administration training center, South Charleston, to accommodate about 350 patients. A medical clinic with 35 beds will be attached and facilities for a limited amount of occupational training will be provided. Funds for the transportation, hospitalization and treatment of patients will be provided by the U. S. Public Health Service, which will also provide a medical staff for the institution. Under the provisions of an act passed at the 1943 session of the West Virginia legislature, local health officers are authorized to commit to the institution persons who refuse to submit to treatment in their local communities, but admission will also be authorized on a voluntary basis. The so-called fast treatment will be used at the center, consisting of a maximum of thirty days for syphilis and fifteen days for gonorrhea.

GENERAL

Meeting on Radiology.—The Radiological Society of North America will hold a business session at the Drake Hotel, Chicago, December 1-2. There will be no scientific sessions, exhibits or refresher courses. Dr. Donald S. Childs, 607 Medical Arts Building, Syracuse 2, N. Y., is secretary-treasurer.

Anesthetists Convene.—The American Society of Anesthetists will hold its annual meeting at the New York Academy of Medicine, New York, December 9, under the presidency of Dr. Emery A. Rovenstine, New York. The speakers will include Drs. Edward J. Van Liere, Morgantown, W. Va., on "The Role of Anoxia in Gastrointestinal Effects of Anesthesia" and Stuart C. Cullen, Iowa City, "Clinical and Laboratory Observations on the Use of Curare for Muscular Relaxation During Inhalation Anesthesia."

American Review of Soviet Medicine.—The American-Soviet Medical Society for the Exchange of Medical Information has issued the first number of its official organ, *American Review of Soviet Medicine.* In a foreword, Dr. Walter B. Cannon stresses that, while many leaders of Soviet medicine can read English medical literature, few English-speaking physicians are familiar with the Russian language. Consequently, Soviet medical publications have little circulation in the English-speaking nations and little is known of the progress in the theory and the practice of medicine and surgery in the Soviet Union. As a remedy for this defect, the *American Review of Soviet Medicine* is being issued. The publication will contain translations of important papers from the Russian, survey articles written by American experts on various aspects of Soviet medicine, news of current medical events in the U. S. S. R., reviews of Soviet medical books and abstracts from Soviet medical periodicals. The publication will appear bimonthly under the editorship of Dr. Henry E. Sigerist.

Latin American Physicians Study Health Education.—Eight Latin American physicians traveling in the United States under the auspices of the Pan American Sanitary Bureau visited the American Medical Association headquarters in Chicago, November 6-9. Their program in Chicago was arranged cooperatively by the American Medical Association and the American College of Surgeons, including visits at the headquarters of both organizations and opportunities to observe hospital work, medical education and, particularly, health education. The physicians, together with the seven Latin American republics which they represented, were as follows:

Dr. Jesuino Albuquerque, commissioner of public health of the federal district, Rio de Janeiro, Brazil.
Dr. Aberlardo Marinho, director of health education, Rio de Janeiro, Brazil.
Dr. Francisco Sequeira, chief, health education, San Salvador, El Salvador.
Dr. Epaminodas Quintana, chief, health education division, Guatemala.
Dr. Alfonso Segura-Albiter, director, Morelos Hospital, Mexico City, Mexico.
Dr. Carlos Amaya, chief, health education, Managua, Nicaragua.
Dr. Raúl Peña, chief, public health education, Asuncion, Paraguay.
Dr. M Lares Gabaldón, chief, division of health education and publications, Caracas, Venezuela.

Special Society Elections.—Dr. Albert C. Furstenberg, Ann Arbor, Mich., was chosen president-elect of the Association of American Medical Colleges at its annual meeting in Detroit recently and Dr. Ewen M. MacEwen, Iowa City, was installed as president. Philip A. Shaffer, Ph.D., St. Louis, is the vice president, Dr. Arthur C. Bachmeyer, Chicago, treasurer, and Dr. Fred C. Zapffe, Chicago, secretary. The 1944 meeting will be held in Detroit at the Statler Hotel, October 23-25.——Dr. Gordon B. New, Rochester, Minn., was chosen president-elect of the American Academy of Ophthalmology and Otolaryngology at its annual meeting in Chicago, October 10-13, and Dr. Lawrence T. Post, St. Louis, was inducted into the presidency. Vice presidents are Drs. C. Stewart Nash, Rochester, N. Y., Harold F. Whalman, Los Angeles, and Chevalier L. Jackson, Philadelphia. Dr. William L. Benedict, Rochester, Minn., is the executive secretary-treasurer. Other secretaries are Drs. Oliver E. Van Alyea, Chicago, for otolaryngology, Algernon B. Reese, New York, ophthalmology, Albert D. Ruedemann, Cleveland, instruction-ophthalmology, Dean M. Liele, Iowa City, instruction-otolaryngology and maxillofacial surgery, Erling W. Hansen, Minneapolis, public relations and Harry S. Gradle, Chicago, home study courses.

Finney-Howell Research Foundation Fellowships.—Announcement has been made by the Finney-Howell Research Foundation, Inc., that all applications for fellowships for next year must be filed in the office of the foundation, 1211 Cathedral Street, Baltimore, by Jan. 1, 1944. Applications received after that date cannot be considered for 1944 awards, which will be made the first of March 1944. This foundation was provided for in the will of the late Dr. George Walker, Baltimore, for the support of "research work into the cause or causes and the treatment of cancer." The will directed that the surplus income from the assets of the foundation together with the principal sum should be expended within a period of ten years to support a number of fellowships in cancer research, each with an annual stipend of $2,000, "in such universities, laboratories and other institutions, wherever situated, as may be approved by the board of directors." Fellowships carrying an annual stipend of $2,000 are awarded for the period of one year, with the possibility of renewal up to three years; when deemed wise by the board of directors, special grants of limited sums may be made to support the work carried on under a fellowship. Applications must be made on the blank form which will be furnished by the secretary, Dr. William R. Fisher, Baltimore, or any member of the board of directors.

Lowest Death Rate Recorded for First War Year.—The death rate for 1942, the first year of United States participation in the war, was 10.4 per thousand of population, according to a report issued by the Bureau of the Census, Department of Commerce. This rate was slightly lower than the rate of 10.5 per thousand of population in 1941 and was the lowest ever recorded for the United States. Despite the decrease in the total death rate there was an increase in the rate for certain causes of death such as heart diseases, cancer and intracranial lesions of vascular origin. Most of the increase occurred in the diseases characteristic of old age. Cancer claimed 163,400 lives in the United States last year, 3,474 more than in 1941. Substantial reductions in the death rate were recorded for pneumonia and influenza and motor vehicle accidents. The ten leading causes of death and their death rates per hundred thousand of population in 1942 as compared with their rates in 1941 were as follows:

	1942	1941
1. Diseases of the heart	295.2	290.2
2. Cancer and other malignant tumors	122.1	120.2
3. Intracranial lesions of vascular origin	90.2	89.1
4. Nephritis	72.4	75.1
5. Pneumonia and influenza	55.7	63.9
6. Tuberculosis	43.1	44.5
7. Premature birth	25.8	25.1
8. Diabetes mellitus	25.4	25.5
9. Motor vehicle accidents	21.2	30.0
10. Syphilis	12.2	13.3

Southern Surgical Association.—The annual meeting of the Southern Surgical Association will be held at the Roosevelt Hotel, New Orleans, December 7-9, under the presidency of Dr. Barney Brooks, Nashville, Tenn. Included among the speakers will be:

Drs. Alfred Blalock and Edwards A. Park, Baltimore, The Surgical Treatment of Experimental Coarctation (Atresia) of the Aorta.
Col. Daniel L. R. Borden, M. R. C., Aseptic Appendectomy.
Lieut. Col. James Barrett Brown, M. C., A. U. S., and Dr. Frank McDowell, St. Louis, Neck Dissection for Carcinoma.
Lieut. Col. Burr N. Carter and Major Michael E. DeBakey, M. C., A. U. S., Current Trends in Military Surgery.
Dr. Warren H. Cole and Lewis J. Rossiter, A.B., Chicago, Chronic Cystic Mastitis.
Col. Bradley L. Coley and Major George F. Wollgast, M. C., A. U. S., Penicillin Therapy in an Army Hospital.
Lieut. Col. Loyal Davis, M. C., A. U. S., Major John E. Scarff, M. R. C., Major Neil C. Rogers, M. C., A. U. S., and Lieut. Meredith Dickinson, M. R. C., High Altitude Frostbite.
Drs. William L. Estes Jr. and Belton A. Bennett Jr., Bethlehem, Pa., The Problem of Perforation in Peptic Ulcer, with a Report of End Results.
Dr. Charles G. Heyd, New York, Voice Disabilities Following Thyroid Surgery.
Drs. Frank H. Lahey and Samuel F. Marshall, Boston, Indications for and Experiences with Total Gastrectomy.
Dr. Rudolph Matas, New Orleans, Personal Experiences in the Surgical Treatment of Aneurysms of the Lower Extremities; Lantern Slide Exhibit with Special Reference to the Methods of Intrasaccular Suture (Endo-Aneurysmorrhaphy).
Drs. John J. Morton Jr. and William J. Merle Scott, Rochester, N. Y., Ligation of the Abdominal Aorta for Dissecting Aneurysm of the Left Common Iliac.
Dr. Joseph Garland Sherrill, Louisville, Poliomyelitis and Allied Lesions of the Cord and Meninges.
Drs. Nathan A. Womack, St. Louis, and Heinz E. Haffner, El Paso, Texas, Cholesterolosis: Its Significance in Badly Damaged Gallbladders.

Conference of Professors of Preventive Medicine.—The first annual meeting of the Conference of Professors of Preventive Medicine was held in New York, October 11. In a discussion of "New Responsibilities and Opportunities for Departments of Preventive Medicine and Public Health," Dr. Harold W. Brown, dean of the School of Public Health, University of North Carolina, Chapel Hill, and Dr. Jean A. Curran, dean, Long Island College of Medicine, Brooklyn, spoke on "Tropical Medicine"; Lieut. Col. Arthur P. Hitchens, M. C., U. S. Army, retired, and Leland W. Parr, Ph.D., Washington, D. C., on "The Military Emergency in General and the Pres-

ence in Medical Schools of A. S. T. (Army) and V12S (Navy) Programs in Particular" and Dr. Roscoe R. Spencer, chief, National Cancer Institute, Bethesda, Md., "Social and Economic Factors as They Influence Disease Production and Health Promotion." A round table on objectives and methods in the teaching of preventive medicine and public health was also held. The Conference of Professors of Preventive Medicine was organized in St. Louis, Oct. 30, 1942. It is an informal organization of the men and women who teach preventive medicine in the approved schools of the United States and Canada and aims to promote the better teaching of the specialty through the bringing together of those who do the teaching and the discussion of problems which arise in that teaching. Dr. Wilson G. Smillie, New York, is president and Dr. Parr secretary.

CANADA

Institute of Psychiatry Created at McGill.—The Allan Memorial Institute of Psychiatry has been established at McGill University, Montreal, Quebec. The new institute, a 50 bed hospital which will become the teaching center of a newly organized department of psychiatry in the university's medical school, will be housed in "Ravenscrag," formerly the home of Sir H. Montagu and Lady Allan, who presented it to the Royal Victoria Hospital, Montreal. The accommodations will be for patients suffering from early and acute psychiatric conditions. Facilities for intensive treatment are being set up. The project will include laboratories to accommodate the development of research and treatment which are the principal objectives. According to the *American Journal of Psychiatry* the Rockefeller Foundation has made a grant of $150,000 over an initial five year period to develop the teaching and research facilities of the institute. The provincial government of Quebec has authorized an annual appropriation of $30,000 for twenty years for hospital maintenance costs, and Montreal citizens have contributed to the project. Dr. D. Ewen Cameron, professor of neurology and psychiatry and director of the department at the Albany Medical College, Albany, N. Y., has been named in charge of the new department at McGill University Faculty of Medicine, serving as the first full professor of psychiatry there and psychiatrist in chief to the Royal Victoria Hospital. He will also be director of the new institute. Dr. Cameron was born in Bridge of Allen, Scotland, in 1901. He received his medical degree at the University of Glasgow in 1924. He served on the psychiatry staff of the Johns Hopkins Hospital, Baltimore, from 1926 to 1928, teaching during the latter year as an instructor in psychiatry at the medical school. Subsequently he served at the Burghoelzli, Zurich, and at the Brandon Hospital for Mental Diseases, Brandon, Manitoba, returning in 1936 to become senior research psychiatrist for the Foundation of Neuro-Endocrine Research at the Worcester State Hospital, Mass. In 1938 he went to Albany Medical College.

LATIN AMERICA

Health Activities in Latin America.—The development of a quinine project is rapidly going forward in Colombia and providing work for hundreds of workers. The discovery of these quinine bearing trees dates back prior to 1878, when Jose Triana, a Colombian botanist, through his researches discovered these trees in the Bucaramanga area; a paper written by him was subsequently published in a French journal. A commission in 1917 made investigations, but steps were not taken to develop the quinine found there. In 1942 a commission sponsored by the U. S. Board of Economic Warfare, in collaboration with agencies of the other American republics, sent a mission to Colombia in its program to discover additional hemisphere sources of quinine. It found a stand of trees extending over 700,000 acres, just as Triana reported in his article more than fifty years ago.

Tuberculosis Control.—Antituberculosis vaccine has been employed successfully for the first time in Colombia with serum donated by the republic of Venezuela. According to the Newsletter of the Health and Sanitation Division, Dr. Edmundo Medina, chief of the department of epidemiology, administered the vaccine for the first time in Bogota to 10 infants at the Maternity Hospital. In Ecuador four of the six pavilions originally planned for the tuberculosis hospital in Guayaquil are now finished, except for a few details.

Typhus Fever Work.—Serious outbreaks of typhus were reported during July near Coban, Quezaltenango, Totonicapan, Solola and Tecpan. During 1942 89 cases of the disease were reported by the U. S. Public Health Service in Colombia. Surveys conducted by a combined U. S. Military and Naval Commission, formed in 1942 to study typhus, show that the disease was present in Bolivia, Chile, Colombia, Ecuador, El Salvador, Guatemala, Mexico, Panama, Peru and Venezuela. Complement fixation tests have proved its presence in Bolivia, Colombia, Ecuador, El Salvador, Guatemala and Peru.

Personal.—Dr. Thomas B. Phinizy, formerly commissioner of public health for Richmond County, Augusta, Ga., is chief of the new field party in the Dominican Republic. Dr. David Glusker, Yonkers, N. Y., is the new chief of party in Costa Rica.——A plaque was unveiled in the Faculty of Medicine of the University of Mexico, July 13, in honor of Dr. Gonzalo Castañeda, first president of the Mexican Academy of Surgery, who has completed fifty years in the practice of medicine.

New Construction.—A new hospital on the grounds of the Getulio Vargas Hostelry at Alagadico in Fortaleza, Brazil, was recently completed. Dr. Jose Borges de Sales is chief medical officer. The government of Guatemala has approved the construction of a three story 300 bed general hospital to be built on the site of the finca "Esperanza" in Guatemala City.

Society News.—The conference of sanitary engineers on inter-American service and public health presided over by Dr. Eugene P. Campbell, regional director for Central America and Panama, was held in Managua, October 11-14. The first Pan American Physical Education Congress was held in Rio de Janeiro, Brazil, July 19-31. The congress was set up on a permanent basis with a secretary in Peru under the auspices of the department of physical education of Peru. It was agreed to hold the next congress in Mexico City in 1945, according to the *Child*. Prof. A. M. Barriga Villalba has been elected president of the recently established Sociedad de Biologia. Other officers include Profs. José Ignacio Chala and Kalman Mezey, vice presidents, Dr. Luis María Murillo, treasurer, and Prof. J. Hernando Ordóñez, general secretary. The official journal of the new group is *Anales*, the first number of which recently made its appearance.

FOREIGN

Institute for Typhus Research.—The *British Medical Journal* reports that an institute for typhus research named after Emil A. von Behring, German bacteriologist, 1854-1917, has recently been opened in Lemberg. The journal announces also that a special typhus institute has been created in Dresden for the "wholesale" preparation of typhus vaccine.

American Award Goes to British Scientist.—The Grocery Manufacturers of America has given its 1943 annual award to Sir John Boyd Orr, LL.D., director of the Rowett Research Institute, Aberdeen, who, according to *Science*, was largely responsible for improving the nutritive quality of the English diet in the face of wartime food shortages. The presentation ceremony was broadcast on November 4 over a two way transatlantic hookup by the Blue Network at a meeting of the association in New York. Sir John accepted the award over the air from England. He is a member of the advisory committee on nutrition of the Ministry of Health.

International University Sanatorium Proposed.—Plans are under way to establish an International University Sanatorium in Switzerland under the auspices of international student organizations, the International Union Against Tuberculosis, the League of Red Cross Societies, the International Committee for Intellectual Cooperation and the European Rotary. Half a million Swiss francs have already been granted by the Swiss government to the project. The subscription of "founders' shares" at 25,000 Swiss francs each is now available, entitling subscribers to permanent ownership to one of the beds and membership in the governing body. A recent announcement indicated that 40 of the proposed 208 beds have been taken and that construction will start as soon as 100 shares have been subscribed. The idea for the institution stemmed from the success of the Swiss University Sanatorium in Leysin in the Vaudois Alps, which was opened in 1922 as a place where professors and students afflicted with tuberculosis could obtain the necessary treatment and carry on with some of their studies as well. Dr. Louis Vautier, director, is the original sponsor of the project, which was supported by the Swiss universities and the Swiss Federal School of Technology.

CORRECTION

Evaluation of Albuminuria.—In paragraph 3 of the directions for determining the significance of albuminuria in selectees, in the communication by Drs. Derow and Stellar in THE JOURNAL, October 23, page 503, the word "supine" should have been used instead of "prone."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 2, 1943.

The Beveridge Plan

At the annual meeting of the British Medical Association the membership was stated to be 44,288, an increase of over 3,000 in the past nine months. The three day debate was devoted almost entirely to the Beveridge plan and the dominant note was hostile. The chairman, Mr. H. S. Souttar, said that the medical profession was faced with the most important crisis in its history. The future of medicine in the new social epoch held vast possibilities, he said, but to bring them to fruition would demand wisdom, patience and not a little self sacrifice.

A medical planning commission was formed in May 1941, and its interim report met with gratifying approval. When members of the commission were about to formulate details, a thunderbolt was launched on them in the shape of the Beveridge report. Its proposals were for the most part admirable, the chairman stated, but when the government set out to give them effect a different situation arose: "Our axiom that first class medical service should be obtainable by every individual, whatever his economic status, is expanded into the proposition that no one is to pay for our services. Our desire to work together in groups is converted into regimented service under a local authority." As a result of discussions carried on with the Ministry of Health for four months there was reason to believe that the ministry's view had been greatly modified and were more likely to meet the approval of the profession.

The following resolution was carried by 200 votes to 10: That in the opinion of the representative body the creating of a full time salaried state medical service is not in the best interests of the community. A resolution to the effect that a comprehensive medical service should be available to all who need it, but that it is unnecessary for the state to provide for those who are willing and able to provide for themselves, was carried by 149 votes to 37.

A number of principles recommended by the committee which represented the medical profession in the conference with the minister of health were adopted. They included the following: 1. The system of medical service should be directed toward the achievement of positive health and the prevention of disease no less than toward the relief of sickness. 2. There should be available for every individual the services of a general practitioner or a family doctor of his own choice. Consultants, specialists and all necessary auxiliary services should be available normally through the family doctor. 3. The health of the people depends primarily on environmental conditions, such as adequate nutrition and security from fear and want. Improvement of means to satisfy these needs should precede or accompany any future organization of health services. 4. It is not in the public interest that the state should convert the medical profession into a salaried branch of central or local government service.

Laboratory Control of Enteric Fevers

At a meeting of the Fever Hospital Medical Service Group of the Society of Medical Officers of Health, Dr. A. Felix opened a discussion on recent advances in the laboratory control of typhoid and paratyphoid fevers. He referred to the finding of Craigie and Yen in 1938 that strains of the typhoid bacillus could be divided into types by their sensitiveness to specifically adapted anti Vi bacteriophages. The results were as reliable as those obtained in streptococcic or pneumococcic infections with the established serologic tests. More recently Felix and Callow had found that the bacteriophage technic could be applied to strains of the paratyphoid B bacillus. Anti Vi phages of Salmonella paratyphi B could be adapted to develop a high degree of specificity for particular strains. So far, four different Vi phage types of S. paratyphi B had been identified and more than 90 per cent of the strains isolated from patients and carriers in Britain during the past three years were found to belong to those four types. The new typing method was found to be an indispensable laboratory aid to investigation of sporadic cases or outbreaks of typhoid and paratyphoid fever. The detection of a chronic carrier was usually difficult, though the methods of isolating the bacilli had been greatly improved by the introduction of refined culture mediums. In all our recent outbreaks of paratyphoid B fever those responsible for spreading the infection were temporary excretors. The true culprits were the chronic carriers, and they escaped detection. The test, it was reported, could be used to detect chronic carriers among recovered patients who otherwise might be discharged from the hospital because they excreted bacilli intermittently. A decreasing Vi titer would indicate temporary excretion; a steady or rising one, a possible carrier state.

Reform in the Training of Psychiatrists

The means provided for the training of psychiatrists are felt to be unsatisfactory at present. In only a few of the medical schools is the student given a proper introduction to the subject, and the standard for the diploma in psychologic medicine is low in general. To remedy this condition a committee presided over by Sir Walter Langdon-Brown has drawn up a program which has been published. The committee considers that graduates of one year should not be allowed, as at present, to emerge as fully equipped specialists. Four years' postgraduate training is recommended as the minimum for the diploma. Also the aspirant should not rush straight from medical school into specialized training but should first obtain experience in general medicine for at least one year in hospital or general practice. The committee further recognizes that for full understanding of psychiatry a year or two should be spent in close contact with mental disorders in their worst forms. The creation of psychiatric clinics in general hospitals, valuable as it is, does not remove the need for residence in a mental hospital as part of the psychiatrist's training, the committee feels. The ideal training should include both.

Rehabilitation of the Amputated

Members of the Allied Ex-Service Men's Provisional Committee, drawn from fourteen countries, recently paid a visit of inspection to Roehampton Hospital, the great center for supplying artificial limbs. During this war 2,330 amputations resulting from enemy action and comprising service patients and civilian men, women and children have been dealt with. The visitors met a 14 year boy from Malta whose legs had both been amputated after an air raid. He was wheeling himself in a chair and had just been swimming. He had arrived in the last month to be fitted with artificial limbs. The wonderful work for the limbless done at Roehampton involves rehabilitation on the mental no less than on the physical plane. A gunner sergeant who lost his right arm above the elbow in Libya eighteen months ago wheeled a heavy barrow and then wielded a pick vigorously to break up a lump of concrete. An instructor who lost his left arm below the elbow showed how, with special appliances, he can use that arm to saw, drive nails and handle a plane. A young girl with an artificial leg, the consequence of a German bomb, mounted, rode and dismounted from a bicycle with every appearance of naturalness. Another cyclist, a man, had two artificial legs. He not only rides considerable distances but, like others among the ex-patients, stands long hours at a bench every day.

BUENOS AIRES

(From Our Regular Correspondent)

Oct. 1, 1943.

The Heart in Emphysema

The Brazilian Academy of Medicine recently awarded its international prize to Drs. Elyser Magalhaes, Egidio S. Mazzei and Jorge M. Remolar, all of Buenos Aires, for their report of a clinical and experimental study on the heart in emphysema. The authors carried on their work in the Instituto de Investigaciones Aplicadas a la Patología Humana of the National Academy of Medicine of Buenos Aires. They found that the conflicting opinions previously given by several authors on the clinical effects on the heart during the course of emphysema were due to lack of differentiation of the circulatory changes caused by the bronchogenic and thoracogenic types of emphysema. Bronchogenic emphysema is the cause of chronic pulmonary heart disease, from which congestive cardiac insufficiency develops. Thoracogenic emphysema causes cardiac disorders which mainly result from coronary sclerosis.

The authors proved the interpretation of their clinical and anatomic studies by experiments on dogs. Electrocardiograms of patients with bronchogenic emphysema show preponderance of the right half of the heart and pulmonary P wave, whereas those of patients with thoracogenic emphysema show the changes proper in coronary insufficiency. Special attention is given by the authors to reports on the subject in the American literature, mainly those of Korentz and Alexander, Christie, McIntosh and Paine.

Bullous Emphysema Caused by Bronchial Tumors

Drs. M. R. Castex, E. S. Mazzei and J. M. Remolar of the Instituto de Investigaciones Físicas Aplicadas a la Patología Humana have reported the results of their investigations on the production of bullous emphysema by bronchial tumors. A certain number of bronchial tumors, as a result of a valvelike obstruction of the bronchus, lead to the production of areas of bullous emphysema. This is often the earliest radiologic sign of the bronchial neoplasm and gives a clue to the diagnosis of some cases of bronchial tumors before any shadow is visible by x-ray.

Health of the Argentine Army

The minister of war recently presented a report in which he stated that the health of the Argentine army is extremely good. The morbidity of infections and contagious diseases is negligible. The morbidity of epidemic parotiditis is 2 per thousand and that of measles, diphtheria, pneumonia and rheumatic fever is 1 per thousand. Cases of typhoid and malaria are rare. X-ray examinations of soldiers for tuberculosis are performed frequently.

Special mention of venereal disease does not appear in the report. Success in preventing infections and the good health of soldiers are attributed to the prophylactic measures used in the army, good food and proper hygiene.

Food of Argentine Soldiers

The minister of war recently reported on the rations of soldiers, which are based on the cost of living in the different regions of the country. The higher ration allowances are given to soldiers in the southern region. In all regions the daily menu has the proper nutritional value and is well selected and varied during the week. Army physicians are consulted in connection with nutritional values in the preparation of the various dishes. Good meat of all kinds, milk, bread, vegetables, cheese, fruits, rice, sugar and other good foods are given in abundance to soldiers. The kitchens and dining rooms of all quarters are modern and large and have proper lighting and ventilation.

Partial Hepatectomy and Pregnancy

Drs. Erico Fels and F. de Eandi have reported to the Argentina Society of Biology on the effect of partial hepatectomy in animals on the course of pregnancy. They concluded that extirpation of one third of the liver does not prevent the normal course of pregnancy, while the excision of one half or more of the structure is followed by immediate termination of pregnancy. Nine days after removal of half of the liver, pregnancy can again occur and proceed normally, owing to the liver's remarkable power of regeneration. Administration of desoxicorticosterone or progesterone had no effect on the results.

Public Health in Paraguay

Public health in Paraguay has recently shown improvement. The Department of Hygiene has increased its work, especially in epidemiology. The campaign against helminthiasis, trachoma, malaria, typhoid and smallpox have been intensified. A division for prevention and therapy of venereal diseases was recently established, with clinics and dispensaries for free medical care and drugs. Medical centers are to be constructed with a sum of $1,000,000 that the government of the United States allotted to the country through the Inter-American Department of Public Health. The project will include buildings for all the various activities of public health, a central pharmacy, the Department of Hygiene and branch offices of the Department of Public Health, a sanatorium for tuberculous patients and a leprosarium. Several hospitals are to be enlarged and improved.

Physicians in Paraguay

According to the 1942 statistics published by the Ministry of Public Health of Paraguay, there are in Paraguay 229 physicians, 73 dentists, 198 pharmacists, 7 chemists and 47 midwives.

Physicians in Uruguay

The number of physicians in Uruguay is estimated in a recent statistical survey to be 1,635, 1 for each 1,346 persons. There are 1,177 physicians in Montevideo, 1 for each 595 persons, and outside the capital there are 458 physicians, 1 for each 3,275 inhabitants.

Poliomyelitis in Chile

In a study of infantile paralysis in Chile, Dr. Agustin Inostrosa reported that only 99 cases were observed in a period of five years (1937-1941). Eighty-four of the cases occurred in children under 2 years of age; only 1 case occurred in the age group from 5 to 10 years. No case was observed in persons above 10 years of age. Of the 99 cases reported, 98 presented motor disturbances in the lower extremities, and in 11 cases the paralysis also involved the upper extremities. In one third of the cases the paralysis was bilateral.

Marriages

THOMAS GRIGSBY HERBERT JR., Charleston, S. C., to Miss Miriam Pope of Dade City, Fla., in Jacksonville, Fla., July 23.

ROBERT JOHN FLOODY, Nutley, N. J., to Miss Victoria Lillian Stanbury of Campbellford, Ont., Canada, in September.

ROBERT JAMES ALLEN, Elizabethton, Tenn., to Miss Jeanette Merck of Gainesville, Ga., in Rossville, Ga., recently.

THEODORE JACKSON BENDER JR., Mobile, Ala., to Miss Agnes Gavin of Memphis, Tenn., September 26.

WEIR MITCHELL TUCKER, Richmond, Va., to Miss Linden Crawford of Rosemont, Pa., October 2.

WILLIAM HUGHES EVANS to Mrs. Elizabeth Miller Williams, both of Richmond, Va., September 29.

DANIEL A. BRODY, Youngstown, Ohio, to Miss Barbara Ann Murray of Lorain recently.

GAMEEL BYRON HODGE to Miss Katie Adams, both of Durham, N. C., September 22.

JOSEPH A. WALSH, Olyphant, Pa., to Miss Wynne Campbell of Baltimore, October 30.

Deaths

Roy Dennis Halloran ✠ Washington, D. C., chief of the neuropsychiatry branch, Army Medical Department, died November 10 in the Walter Reed General Hospital, Washington, aged 49, of coronary occlusion.

Colonel Halloran was born in Cambridge, Mass., Aug. 4, 1894. He received his bachelor of arts degree cum laude from Dartmouth College, Hanover, N. H., in 1917, then graduated at Columbia University College of Physicians and Surgeons, New York, in 1920, serving his internship at the Newark (N. J.) State Hospital. Later he took a course in vital statistics at Harvard University School of Public Health, Boston. He was assistant physician at the New Hampshire State Hospital, Concord, in 1922 and subsequently assistant physician, senior physician and assistant superintendent of the Boston State Hospital. From 1925 to 1933 he was associate in research at the Boston State Hospital, collaborating in the establishment of the research department there. In 1935 Colonel Halloran organized the Child Guidance Clinic at Waltham, Mass., and was co-founder and director of the annual postgraduate seminars in neurology and psychiatry at the Metropolitan State Hospital, Waltham, of which he was first superintendent, a position he held at the time he entered the army. At the hospital he established the Graduate School of Psychiatry. At the time of his death he was on military leave from the institution and also from Tufts College Medical School, Boston, where he had been a member of the staff since 1928, becoming professor of clinical psychiatry in 1939.

COL. ROY D. HALLORAN, M. C., A. U. S., 1894-1943

In July 1942 Colonel Halloran was commissioned from civilian life to the rank of lieutenant colonel and assigned as consultant in neuropsychiatry in the Surgeon General's Office, Washington. A few weeks later he was named head of the neuropsychiatry branch of the Army Medical Department with the rank of colonel.

A specialist certified by the American Board of Psychiatry and Neurology, Colonel Halloran was president of the Massachusetts Occupational Therapy Association from 1939 to 1941 and served as councilor, vice president and president of the New England Society of Psychiatry. He delivered the annual oration of the Massachusetts Medical Society in 1939, serving as a member of the society's legislative committee in 1940 and as councilor in 1942. He had been assistant commissioner of mental diseases for Massachusetts from 1929 to 1933.

Colonel Halloran was the author and co-author of numerous articles on neuropsychiatry and collaborated with Paul I. Yakovlev in the preparation of volume III, Collected Lectures of the Seventh Post-Graduate Seminars in Neurology and Psychiatry.

"The placing of a psychiatrist with each division for the purpose of preventive psychiatry was a particular accomplishment of Colonel Halloran," Major General Norman T. Kirk, surgeon general of the army, stated in commenting on Colonel Halloran's death. "The psychiatrist consultation services he set up at replacement training centers have been highly important in adjusting the new recruit to the rigors of army life."

The death of Colonel Halloran again focuses attention on the tremendous burden carried by physicians as a contribution to the winning of the war. Certainly his untimely death, so young, from a failure of the heart to meet the stress placed upon it is a great loss to medicine and to the nation.

Jesse Godfrey Moritz Bullowa ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1903; clinical professor of medicine at the New York University College of Medicine; at one time adjunct professor of clinical medicine at the New York Polyclinic Medical School and Hospital; specialist certified by the American Board of Internal Medicine and a member of the founders group; fellow of the American College of Physicians, New York Academy of Medicine, American Association for the Advancement of Science and the New York Academy of Scientes; member of the New York Pathological Society, Society for Experimental Biology and Medicine, American Association for the Study of Internal Secretions, National Tuberculosis Association, American Association of Immunologists and the American Trudeau Society; consulting physician to the New York Infirmary for Women and Children and the Norwalk (Conn.) General Hospital; consulting serologist to the Long Beach (N. Y.) Hospital; visiting physician, Harlem and Willard Parker hospitals; trustee of the Littauer Foundation; translator of Bechhold's "Colloids in Biology and Medicine," 1919; author of the "Management of the Pneumonias, for Physicians and Medical Students," 1937, and the Beaumont Foundation lecture for 1939 "Specific Therapy of the Pneumonias"; died November 9, aged 64.

Robert Broaddus Homan Sr. ✠ El Paso, Texas; University of Texas School of Medicine, Galveston, 1897; member of the Southwestern Medical Association and the American College of Chest Physicians; past president of the El Paso County Medical Society; formerly councilor of the First District of the Texas State Medical Association; a member of the board of directors of the Texas State Tuberculosis Association and formerly a member of the board of directors of the National Tuberculosis Association; member of the Board of Appeals, Selective Service for the El Paso district; co-owner and founder of the Homan Sanatorium, which he established in 1910 and continued to operate until 1936; co-owner and president of the board of directors of Southwestern General Hospital; president of the board of directors of Homan and Crimen, Incorporated, operators of the hospital; associate medical director of St. Joseph's Sanatorium; a member of the staffs of Hotel Dieu, Sisters' Hospital and the Masonic Hospital; formerly a member of the board of managers of the El Paso City-County Hospital; a charter member of the El Paso Rotary Club and formerly a director of the El Paso Chamber of Commerce; at one time member of the board of managers of *Southwestern Medicine* and associate editor of *Diseases of the Chest;* died September 6, aged 71, of arteriosclerosis and uremia.

Charles Watts Flynn, Dallas, Texas; University of Pennsylvania School of Medicine, Philadelphia, 1911; instructor in anatomy at the University of Pittsburgh, 1912-1913; associate professor of surgery at the Baylor University College of Medicine from 1914 to 1927, professor of operative surgery from 1927 to 1930, professor of clinical surgery from 1930 to 1937, professor of surgery from 1937 to 1941 and since the latter date emeritus professor; honorary professor of surgery at the Southwestern Medical Foundation School of Medicine; specialist certified by the American Board of Surgery; member of the State Medical Association of Texas; member and formerly vice president of the Southern Surgical Association; past president of the Texas Surgical Association; fellow of the American College of Surgeons; formerly chief surgeon at the Baylor University Hospital; visiting surgeon, St. Paul's, Methodist and the Medical Arts hospitals; died August 13, aged 59, of cerebral hemorrhage.

Halbert Greenleaf Stetson ✠ Greenfield, Mass.; College of Physicians and Surgeons, Baltimore, 1895; member of the House of Delegates of the American Medical Association in 1904, from 1912 to 1914 and from 1916 to 1932; past president of the Massachusetts Medical Society, Franklin County Medical Society, New York and New England Association of Railway Surgeons and the Connecticut Valley Medical Association; member of the New England Surgical Society; fellow of the American College of Surgeons; medical examiner for Franklin County; member of the city board of health from 1909 to 1912; chairman of the school board; for many years president of the board of trustees, the hospital corporation and staff, Franklin County Hospital; on the staff of the Farran Memorial Hospital, Montague City; served as president of the chamber of commerce; died September 15, aged 75, of congestive heart disease.

George Van Amber Brown ✠ McAllen, Texas; Detroit College of Medicine, 1894; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, assistant secretary from 1923 to 1928, first vice president 1923-1924 and president 1928-1929; president of the Wayne County (Mich.) Medical Society, 1927-1928, of the Northern Tri-State Medical Association in 1918 and of the Hidalgo-Starr Counties Medical Society in 1940; fellow of the American College of Surgeons and a member of the board of governors from 1930 to 1932; formerly head of the German Polyclinic, chief of staff, senior surgeon and chief urologist, Highland Park General Hospital, and senior gynecologist at the Providence and St. Joseph's Mercy hospitals, all of Detroit; surgeon, McAllen Municipal Hospital; died September 19, aged 73, of angina pectoris.

Edwin Lee Miller, Kansas City, Mo.; Harvard Medical School, Boston, 1911; member of the Missouri State Medical Association and president, 1935-1936; member of the Western Surgical Association and the Southern Medical Association; specialist certified by the American Board of Surgery; first lieutenant in the medical corps of the U. S. Army during World War I; a founder and member of the executive staff, St. Luke's Hospital; on the staff of St. Mary's Hospital and chief of the surgical staff of the Kansas City General Hospital for many years; consulting surgeon, Missouri Pacific Railway; received the Distinguished Alumni Award of Merit from the University of Missouri, Columbia, in 1938; died October 6, aged 56, of coronary disease with myocardial infarction.

Raymond Ernest Senecal ✠ New Bedford, Mass.; Boston University School of Medicine, 1917; appointed a member of the Public Health Council in July 1943; president of the New Bedford Medical Society; school physician; served during World War I; in 1929 retired as a major in the medical reserve corps of the U. S. Army; on the staffs of St. Luke's and Union hospitals, New Bedford, Acushnet Hospital, Acushnet, and St. Anne's Hospital, Fall River; physician for the board of public welfare for a number of years; member of the Franco-American Civic League, Franco-American Historical Society, New Bedford Civilian Defense Council, Massachusetts Committee on Public Safety and the American Executives Club; died August 24, aged 51, of coronary occlusion.

John Butler ✠ Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1903; associate professor of dermatology at his alma mater; specialist certified by the American Board of Dermatology and Syphilology; member of the American Dermatological Association and the American Academy of Dermatology and Syphilology; major in the medical officers reserve corps, in charge of the department of dermatology and urology at Camp Lewis, Washington, from 1917 to 1919; colonel in the medical reserve corps not on active duty; at one time assistant city physician; on the staffs of the University, St. Mary's, St. Barnabas, Northwestern, General, Lymanhurst and Abbott hospitals; died September 18, aged 66, of coronary disease.

Ivin Sickels, West Nyack, N. Y.; University of the City of New York Medical Department, 1883; assistant professor of chemistry and physics at the Cornell University Medical College, New York, from 1898 to 1908; professor of natural history and subsequently professor of geology at the College of the City of New York, where he taught from 1875 until his retirement in 1923, at which time he was appointed professor emeritus; instructor in chemical laboratory from 1882 to 1887, lecturer in chemistry and physics from 1887 to 1891 and assistant professor of chemistry and physics from 1891 to 1898 at the University Medical College, New York; died August 5, aged 89, of pneumonia.

John Milton Berger ✠ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; formerly instructor in surgery and assistant in clinical surgery at his alma mater and instructor and assistant professor of surgery at Loyola University School of Medicine; served as a major in the medical corps of the U. S. Army in France and Germany during World War I; on the staffs of the Garfield Park Community and St. Anne's hospitals; formerly attending surgeon at the Frances Willard Hospital; died at his home in Oak Park, Ill., September 23, aged 60, of coronary thrombosis.

John Blair Fitts, Richmond, Va.; Medical College of Virginia, Richmond, 1914; assistant professor of orthopedic surgery at his alma mater; member of the Medical Society of Virginia and the American Academy of Orthopaedic Surgeons; in 1936 elected president of the Virginia Orthopedic Society; fellow of the American College of Surgeons; served in France during World War I; assistant orthopedist, Hospital Division, Medical College of Virginia; orthopedic consultant at the Retreat for the Sick and the Stuart Circle Hospital, where he died August 19, aged 53, of aleukemic leukemia.

Julius Hilton Sure ✠ Milwaukee; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; visiting obstetrician and gynecologist, Columbia Hospital; attending obstetrician and gynecologist at the Johnston Emergency Hospital; chief of the obstetric and gynecologic clinic and consultant in obstetrics and gynecology at the Mount Sinai Hospital, where he died August 19, aged 63, of acute myocardial infarction, coronary thrombosis and arteriosclerosis.

James Murice White ✠ Gary, Ind.; Northwestern University Medical School, Chicago, 1926; past president of the Lake County Medical Society and the Tenth District Medical Society; councilor of the Tenth District from 1938 to 1942; past president of the board of health of Gary; served as examining physician for Gary Draft Board number 9 and as a member and secretary of the Lake County Selective Service Appeal Board; on the staffs of the St. Mary's Mercy Hospital and the Methodist Hospital, where he died August 5, aged 45, of coronary thrombosis.

Dix Henry Alverson, Shreveport, La.; Memphis (Tenn.) Hospital Medical College, 1902; member of the Louisiana State Medical Society; died suddenly September 7, aged 63, of coronary occlusion and nephritis.

Lillian Bryan Askenstedt, Louisville, Ky.; Southwestern Homeopathic Medical College and Hospital, Louisville, 1904; formerly lecturer at her alma mater and the Deaconess Hospital; died September 25, aged 75, of coronary occlusion.

Clarence Allen Baer ✠ Milwaukee; Johns Hopkins University School of Medicine, Baltimore, 1905; specialist certified by the American Board of Dermatology and Syphilology; served on the British and French fronts with the Red Cross during World War I and for devotion to duty was decorated by the French government; at one time chief of staff at the Milwaukee Children's Hospital; died September 15, aged 63, of coronary thrombosis and myocarditis.

William H. Barnum, Fremont, Mich.; Saginaw (Mich.) Valley Medical College, 1902; member of the Michigan State Medical Society; secretary and past president of the Newaygo County Medical Society; chairman of the Newaygo County Selective Service Board; past president of the chamber of commerce; a director of the Home State Bank of Fremont; died suddenly in Baldwin September 4, aged 70, of cerebral hemorrhage.

Johnson Lorenzo Bean, Norway, Maine; Tufts College Medical School, Boston, 1933; member of the Maine Medical Association and the New England Pediatric Society; served on the staff of the Maine General Hospital, Portland; began extended active duty as a captain in the medical corps, Army of the United States, on Oct. 15, 1942; honorably discharged because of physical disability on May 12, 1943; died August 10, aged 37, of coronary occlusion.

Hector Emile Bernadas ✠ New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1902; past president and vice president of the Orleans Parish Medical Society; councilor of the First District Medical Society; president of the staff, Hotel Dieu, Sisters' Hospital; died suddenly September 22, aged 64, of coronary thrombosis.

Samuel M. Bloomstein, Nashville, Tenn.; University of Nashville Medical Department, 1896; member of the Tennessee State Medical Association; for many years professor of clinical pediatrics at the Vanderbilt University School of Medicine; formerly a member of the city board of education; served on the board of directors of the Davidson County Tuberculosis Hospital for sixteen years; died September 24, aged 73, of endocarditis.

Joseph Franklin Bowers, Denver; Miami Medical College, Cincinnati, 1890; died in St. Joseph's Hospital August 14, aged 75, of cerebral hemorrhage.

Robert Ambrose Buchanan, Lodi, Calif.; California Medical College, San Francisco, 1896; Hahnemann Medical College of the Pacific, San Francisco, 1898; College of Physicians and Surgeons of San Francisco, 1903; member of the California Medical Association; owner of the Buchanan Hospital, where he died October 25, aged 77, of generalized and cerebral arteriosclerosis.

Howard William Burkley, Seymour, Ind.; Medical College of Indiana, Indianapolis, 1902; for many years medical examiner for the Pennsylvania Railroad; died August 28, aged 63, of cerebral hemorrhage.

Eugene Charles Ciccarelli, New York; Syracuse University College of Medicine, 1926; member of the Medical Society of the State of New York, American Psychiatric Association and the American Orthopsychiatric Association; psychiatrist for the bureau of child guidance of the city board of education; died at his home in Scarsdale, N. Y., September 24, aged 42, of carcinoma.

David Cohn, Buffalo; University of Buffalo School of Medicine, 1905; died August 21, aged 63, of coronary thrombosis.

Lewis Reeves Dawson ⊕ Seattle; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1882; an Affiliate Fellow of the American Medical Association; fellow of the American College of Surgeons; formerly consultant in gynecology and obstetrics at the King County Hospital; during the Spanish American War served with the First Washington Infantry, U. S. Volunteers; a lieutenant colonel and brigade surgeon in the Washington National Guard; died August 16, aged 87, of heart disease.

George William Deemer, Las Animas, Colo.; Northwestern University Medical School, Chicago, 1894; died September 10, aged 78, of coronary thrombosis.

Philip Albert Delavan, St. Paul; University of Minnesota Medical School, Minneapolis, 1927; member of the Minnesota State Medical Association; resigned his appointment as clinical instructor in ophthalmology and otolaryngology at his alma mater on Feb. 1, 1940; specialist certified by the American Board of Otolaryngology; served during World War I; member of the staffs of University, Midway, Ancker, Children's and St. Joseph's Hospital, where he died September 12, aged 44, of acute coronary infarction.

William Peter Dickerson, Newport News, Va.; Howard University College of Medicine, Washington, D. C., 1899; formerly vice president of the National Medical Association; president of the Crown Savings Bank; medical superintendent, roentgenologist, president of the medical staff and treasurer of the board of trustees of the Whittaker Memorial Hospital, where he died August 8, aged 73, of subarachnoid hemorrhage.

John Guido Guenther ⊕ La Grange, Texas; University of Texas School of Medicine, Galveston, 1897; past president of the Lavaca County and Fayette County Medical societies; served overseas during World War I; chairman of the board of trustees and president of the staff of La Grange Hospital; on the staff of the Drs. John Guenther Clinic; died September 14, aged 71, of coronary occlusion.

Oscar Lee Hansen, Chicago; Rush Medical College, Chicago, 1897; served during World War I; died in the Veterans Administration Facility, Downey, Ill., September 19, aged 73, of chronic myocarditis and arteriosclerosis.

Thomas P. Howell, Davis, Okla.; University of Maryland School of Medicine, Baltimore, 1872; died in a hospital at Pauls Valley, July 16, aged 94, of bronchopneumonia and an injury received in a fall.

Fayette Elmore Hubbard ⊕ Montclair, N. J.; University of Vermont College of Medicine, Burlington, 1906; member, past president and vice president of the American Society of Anesthetists, Inc.; medical examiner for the draft board of Bloomfield and Glen Ridge; chairman of the medical board and member of the staff of the Mountainside Hospital; died September 21, aged 66, of coronary occlusion.

Charles Leitner Jennings, Jacksonville, Fla.; University of Maryland School of Medicine, Baltimore, 1906; member of the Florida Medical Association; fellow of the American College of Surgeons; formerly chief surgeon at St. Luke's Hospital; died in the Duke Hospital, Durham, N. C., September 30, aged 62, of bronchogenic carcinoma.

William Titus Marius Liccione ⊕ Mount Vernon, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1919; fellow of the American College of Surgeons; associate gynecologist at the Mount Vernon Hospital, assistant gynecologist at the Bellevue Hospital, New York, and attending surgeon at the Grasslands Hospital, Valhalla; died September 26, aged 47, of heart disease.

Jesse Pendergraft, Stidham, Okla. (licensed in Oklahoma under the Act of 1908); served on the staff of the Baptist Hospital, Muskogee; died August 11, aged 76, of carcinoma.

Leo Buckley Reed ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1920; instructor in applied and topographic anatomy at his alma mater; on the staff of the Jefferson Hospital, where he died August 17, aged 47, of cirrhosis of the liver.

Walter E. Scarborough, Avery, Texas; Barnes Medical College, St. Louis, 1904; veteran of the Spanish-American and World War I; died in Veterans Administration Facility, Waco, August 31, aged 62, of chronic pulmonary tuberculosis.

Morris J. Van Horn, Town Hill, Pa.; Medico-Chirurgical College of Philadelphia, 1902; member of the Medical Society of the State of Pennsylvania; served on the staff of the Nanticoke State Hospital; died August 30, aged 68, of carcinoma of the stomach.

Ralph Doremus Vreeland, Newark, N. J.; Columbia University College of Physicians and Surgeons, New York, 1906; member of the Medical Society of New Jersey; served as an examiner for the draft board and as a first lieutenant in the medical corps of the U. S. Army during World War I; at one time an assistant surgeon on the staff of the Roosevelt Hospital, New York; formerly medical director of L. Bamberger and Company; died in Glen Ridge August 23, aged 59, of carcinoma of the right hand with metastasis.

Charles L. Watkins, Meridian, Miss.; Mississippi Medical College, Meridian, 1911; died in Rush's Infirmary August 27, aged 69, of acute cardiac decompensation following nephritis and ureteral stone.

Elliott Hillery Wheeler, St. Louis; American Medical College, St. Louis, 1911; also a pharmacist; physician for the city jail for several years; died in the Evangelical Deaconess Home and Hospital August 5, aged 64, of hypertensive heart disease and uremia.

Robert E. Lee Williams, Point Pleasant, Mo.; St. Louis College of Physicians and Surgeons, 1890; died in St. Francis Hospital, Cape Girardeau, August 15, aged 80, of cerebral hemorrhage.

Homer Forest Wonders ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1907; died in the Presbyterian Hospital, New York, August 27, aged 66, of cerebral hemorrhage.

Charles Austin Wynn, Greensburg, Pa.; Jefferson Medical College of Philadelphia, 1896; formerly coroner of Westmoreland County; died August 29, aged 74, of Parkinson's disease.

Anton George Zeiss, Sheboygan, Wis.; Ludwig-Maximilians-Universität Medizinische Fakultät, Munich, Bavaria, Germany, 1888; served as county and city physician; died August 28, aged 84, of chronic myocarditis and diabetes mellitus.

DIED WHILE IN MILITARY SERVICE

Lester White Baird, Temple, Texas; University of Illinois College of Medicine, Chicago, 1933; member of the State Medical Association of Texas, Radiological Society of North America, Inc., and the American College of Radiology; specialist certified by the American Board of Radiology, Inc.; a fellow in radiology in the Mayo Foundation, Rochester, Minn., from 1934 to 1937; formerly a member of the Scott and White Clinic; commissioned a captain in the medical corps, Army of the United States, on Oct. 13, 1942; died in the station hospital, Camp Carson, Colo., October 6, aged 36, of coronary thrombosis.

Ross Bradley Bretz ⊕ Colonel, M. C., U. S. Army, Durham, N. C.; Western Reserve University Medical Department, Cleveland, 1909; U. S. Army Medical School, 1921; member of the House of Delegates of the American Medical Association in 1934 and the 1935 special session; served during World War I; commissioned a captain in the medical corps of the regular Army Sept. 9, 1920, a major in 1929, a lieutenant colonel in 1937 and later a colonel; formerly professor of military tactics and science at his alma mater; commanding officer, station hospital, Camp Butner; died in the Moore General Hospital, Swannanoa, August 5, aged 59, of coronary thrombosis.

Correspondence

"ACUTE TOXIC NEPHROSIS" AND PHOSGENE

To the Editor:—I would call to the authors' attention the possibility of the production of phosgene gas during the worker's operations as cited in the protocol of the article on "Acute Toxic Nephrosis" (THE JOURNAL, September 11, p. 81). The existence of carbon tetrachloride vapor in the presence of the open flame and heat during welding quite probably resulted in phosgene production.

It is widely held that phosgene is considerably more toxic than carbon tetrachloride by inhalation. Information is sought from the authors of this excellent clinical and laboratory study whether it may not be based erroneously on pure carbon tetrachloride as the sole contributing factor to poisoning and that a combination with phosgene may not have existed.

WILLIAM R. BRADLEY,
Industrial Hygienist,
80 Maiden Lane,
New York City.

[NOTE.—This letter was referred to Dr. A. C. Corcoran, who replies:]

To the Editor:—That phosgene poisoning may have complicated the pattern in our patient was suggested in the article (page 81, paragraph 2). Mr. F. B. Mallette, industrial hygienist, Firestone Tire and Rubber Company, has since called to our attention the possibility that hydrogen chloride vapor may also have been formed during the heating of carbon tetrachloride.

Both these vapors are more toxic than carbon tetrachloride, but their toxicity is largely immediate in time, respiratory in character and, as far as we can determine, not associated with delayed and severe manifestations of renal injury.

Indeed, Mr. Mallette notes the maximum concentration of carbon tetrachloride vapor tolerable for several hours with slight symptoms as 0.16 per cent by volume, whereas he calculated an exposure of our patient to 0.29 per cent by volume for five and a half hours and concludes that the effect produced in our patient might well be expected from the amount of solvent to which he was exposed.

It therefore seems likely that carbon tetrachloride inhalation is sufficient explanation of the toxic nephrosis seen in our patient. The respiratory findings in this case (dyspnea, epistaxis, fluid in both pleural cavities, increased lung markings suggesting pulmonary edema) may be attributed to the action or to one or both of the products of thermal decomposition of carbon tetrachloride.

However, since cases 2 and 3 and Smetana's report (Nephrosis Due to Carbon Tetrachloride, *Arch. Int. Med.* **63**:760 [April] 1939) showed evidence of pulmonary irritation after exposure to unaltered fumes of the solvent, we suggested that phosgene poisoning was not essential to any part of the pattern in our case, although we must presume that it existed. Interestingly, Dr. M. A. Simon (Acute Toxic Nephritis Due to Inhalation of Carbon Tetrachloride Fumes, *Canad. M. A. J.* **41**:580 [Dec.] 1939) has demonstrated structurally in a patient who had suffered from this condition the complete restitution to integrity shown functionally in our patient.

A. C. CORCORAN, M.D., Indianapolis.

BACILLUS VIOLACEUS

To the Editor:—In THE JOURNAL of April 16, 1938 M. E. Black and I reported the first known case of human infection due to Bacillus violaceus manillae. In this report it was noted that no other organisms were ever found as contaminants in any of the lesions at any time. As these were large open lesions discharging for weeks, this struck me as unusual. I therefore conducted a series of experiments at the time and found that there was a strong bactericidal substance produced by B. violaceus manillae which killed other organisms and therefore prevented contaminations. I wrote to various institutions in the attempt to get help in further isolating the agent, as it was a problem of biologic chemistry as well as of bacteriology. Various pathologists were advised of my findings at the time in private communications, but no one indicated any interest in this phase of the study and in fact some expressed doubt as to the pathogenicity of B. violaceus, a point which has been proved by other subsequent case reports in THE JOURNAL.

Since the announcement of the results of treatment with penicillin, revived interest has been shown in my findings. I want to go on record as to my original observation as to any similar substance which may be developed from B. violaceus manillae or from any substance produced by B. violaceus manillae in relation to its effects on other organisms or tissues. I am still conducting my experiments and believe it only fair that I establish priority even though I am not yet ready to publish my final results.

JOHN SHAHAN, M.D., Clearwater, Fla.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Nov. 13, page 721.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Jan. 17-19. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF INTERNAL MEDICINE. *Written.* Various centers, Feb. 21. Final date for filing application is Dec. 15. Ass't. Sec., Dr. William A. Werrell, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Part II.* May or June. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6, Pa.

AMERICAN BOARD OF OPHTHALMOLOGY: New York, June. Final date for filing application is Dec. 15. Chicago, October. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Written and Oral, Part II.* Chicago, Jan. 21-22. Sec., Dr. Guy A. Caldwell, 3503 Prytania St., New Orleans, La.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Los Angeles, Feb. 2-5. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Ia.

AMERICAN BOARD OF PEDIATRICS: *Written.* Locally, Feb. 4. *Oral.* Philadelphia, March 25-26, and San Francisco, May 6-7. Sec., Dr. C. A. Aldrich, 707 Fullerton Ave., Chicago.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: *Oral.* Locally, Dec. 20-21. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: February. Final date for filing application is Dec. 15. Sec., Dr. B. R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written. Part I.* March. Final date for filing application is Jan. 1. Sec., Dr. J. Stewart Rodman, 225 S. Fifteenth St., Philadelphia.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Finding of Guilt of Crime Involving Moral Turpitude After Plea of Nolo Contendere Not a "Conviction" Justifying Revocation of License.—Henry J. Schireson, who was licensed to practice medicine and surgery in New Jersey, was found guilty, after a plea of nolo contendere in a federal court, of (1) unlawfully concealing assets from a trustee in bankruptcy, (2) making a false oath in bankruptcy proceedings and (3) perjury, and was sentenced to and confined in a federal penitentiary in Pennsylvania. Subsequently and while he was confined in the penitentiary a complaint was filed with the state board of medical examiners of New Jersey charging that he had been "convicted" of crimes involving moral turpitude, which is one of the grounds enumerated in the New Jersey medical practice act for the suspension or revocation of a license to practice medicine and surgery. The board accordingly notified Schireson in writing that it would, in Trenton, N. J., on Feb. 18, 1942 hold a hearing to consider whether or not it should suspend or revoke his license. On his request, made through his attorney, the hearing was postponed to March 18 and again to April 14, but the board would grant no further postponements and proceeded with the hearing on April 14 without his presence, ultimately revoking his license to practice. The federal convict brought certiorari in the supreme court of New Jersey to review the order of revocation but the supreme court, in effect, affirmed the order of the board. *Schireson* v. *State Board of Medical Examiners,* 28 A. (2) 879, J. A. M. A. **123**:55 (Sept. 4) 1943. Schireson then appealed to the Court of Errors and Appeals of New Jersey.

The New Jersey medical practice act, said the Court of Errors and Appeals, authorizes the board of medical examiners to revoke the license of any licentiate who

> (a) has been adjudicated insane, or (b) habitually uses drugs or intoxicants, or (c) has practiced criminal abortion, or been convicted of the crime of criminal abortion, or has been convicted of crime involving moral turpitude, or (d) has advertised fraudulently, . . . Before any license . . . shall be suspended or revoked, except in the case of convictions of criminal abortions or convictions of a crime involving moral turpitude or convictions of violations of any Federal or State law relating to narcotic drugs, the accused person shall be furnished with a copy of the complaint and be given a hearing before said board in person or by attorney, . . .

From this statute, continued the court, it is clear that the legislature ordained different standards or modes of procedure in the matter of the hearing granted the accused person. Thus, if a physician had become insane or habitually used drugs or intoxicants or had practiced criminal abortion, manifestly such status or conduct became a matter of proof on the merits before the board. But in cases where such physician had been convicted of criminal abortion or of crime involving moral turpitude, such licentiate was not entitled to receive either the complaint or a hearing. In the first class of delinquents the truth of falsity of the charge had to be determined by the board as a fact issue. In the second the conviction itself of the designated crime became sufficient basis for the board's disciplinary action, and the truth or falsity of the charge on which such conviction resulted had no place whatever in the board's consideration. The question therefore is whether the proceedings had in the federal court, that is, plea of nolo contendere and sentence to prison, constitutes a "conviction" within the meaning of the medical practice act. "Conviction," according to Blackstone, "may occur two ways: either by the person confessing the offense and pleading guilty, or by his being found so by the verdict of his country" [i. e. by the verdict of a jury]. A conviction in ordinary legal language consists of a plea "guilty" or verdict of guilty and it is immaterial whether final judgment has been rendered thereon. *Bishop on Statutory Crimes,* sec. 348. In *Peacock* v. *Judges etc.,* 46 N. J. L. 112, it was held that a plea of nolo contendere is an implied confession of the crime of which the defendant is charged and is equivalent to a plea of guilty so far as judgment and execution in that case are concerned, and that the difference between this implied confession and an expressed confession by plea of guilty was that, after an expressed plea of guilty, "Not guilty" may not be pleaded to an action of trespass for the same injury, whereas it may at any time be done after a plea of nolo contendere. The distinction is clear that a plea of guilty to a criminal indictment will not reserve for the wrongdoer the right to contest the issue in a civil action for the same wrong, while a plea of nolo contendere creates no such estoppel but is merely an implied admission of guilt for the purposes of the instant criminal prosecution. Applying these principles to this case, the court continued, we think it was error for the intermediate appellate court to hold that Schireson could be deprived of his license to practice medicine and surgery solely on the exhibits relating to the congeries of events in the federal court that led to Schireson's imprisonment in the federal penitentiary, which exhibits were placed before the board. The statute, once the board acquires jurisdiction, ordains that the delinquent be "convicted" of the crime and to hold that a commitment on a nolo contendere plea is a conviction which may be used to satisfy the requirements of the statute, in a proceeding entirely collateral, is to accord to the plea of nolo contendere an effect which the cases and text-writers mentioned do not support. Here there was no such conviction in the strict sense or the ordinary legal sense as would estop the appellant from contesting the issue in a collateral proceeding. The provisions of the medical practice act, which are penal in character, must be construed strictly. Schireson, licensed to practice medicine under the New Jersey law, had a status in which the law protects him until such time as he might be shown to be unfit to continue in that profession. The New Jersey medical practice act ordains that under certain conditions and for specified malefactions that right may be revoked or suspended by the state. And this, of course, is on the theory that this right, a property right, is derived from the state or society generally, and society is entitled to be protected from practitioners found to be unfit. The medical practice act makes no provision for the case of one who pleads nolo contendere to an indictment for a crime involving moral turpitude. Perhaps it is casus omissus. If it is, we may not supply the want. The distinction between a conviction of crime and the judgment and commitment that results from a plea nolo contendere is recognized in our law and Schireson is entitled to its benefit. That plea raises no issue but is traditionally regarded as one by which the accused submits himself to the mercy of the court. The court is always free to refuse to accept such submission. To designate a nolo contendere as a plea seems to be a misnomer. It is rather an unwillingness to plead and present a defense which is essentially the function of a plea in a criminal cause. Our conclusion is that the record of the judgment and the commitment of Schireson, following his plea of nolo contendere to the charges of the indictment in the federal court, do not amount to a conviction of the designated crime within the contemplation of the medical practice act and hence may not be used as such for the revocation of his license. Whether Schireson's license may be suspended or revoked under the medical practice act by the state board of medical examiners after a hearing on the merits of the charges that he committed a crime involving moral turpitude is a question which we expressly reserve.

The Court of Errors and Appeals accordingly, in effect, reversed the order of the board of medical examiners revoking Schireson's license to practice medicine in New Jersey.—*Schireson v. State Board of Medical Examiners, 33 A. (2d) 911 (N. J., 1943.)*

Society Proceedings

COMING MEETINGS

American Society of Anesthetists, New York, Dec. 9. Dr. McKinnie L. Phelps, 745 Fifth Ave., New York 22, Acting Secretary.

Association for Research in Nervous and Mental Diseases, New York, Dec. 17-18. Dr. Thomas E. Bamford Jr., 115 East 82d St., New York 28, Secretary.

Eastern Section, American Federation for Clinical Research, New York, Dec. 4. Dr. Charles H. Wheeler, 345 East 68th St., New York, Acting Secretary.

Seaboard Medical Association, Richmond, Va., Nov. 30-Dec. 2. Dr. Clarence P. Jones, 3117 West Avenue, Newport News, Va., Secretary.

Society for the Study of Asthma and Allied Conditions, New York, Dec. 4. Dr. W. C. Spain, 116 East 53d St., New York, Secretary.

Southern Surgical Association, New Orleans, Dec. 7-9. Dr. Alton Ochsner, 1430 Tulane Ave., New Orleans, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1933 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

66:227-348 (Sept.) 1943

Growth of Major Long Bones in Healthy Children: Preliminary Report on Successive Roentgenograms of Extremities from Early Infancy to Twelve Years of Age. M. M. Maresh.—p. 227.

Synechias of Vulva in Small Children. H. E. Bowles and L. S. Childs. —p. 258.

Blood Diastase in Mumps. J. P. Murphy, G. S. Bozalis and E. J. Bieri.—p. 264.

Postoperative Pulmonary Collapse in Childhood. C. J. Molony.—p. 280.

American Journal of Medical Sciences, Philadelphia

206:281-420 (Sept.) 1943

Further Historical and Experimental Studies on Menstrual Toxin. D. I. Macht.—p. 281.

Acute Infectious Polyneuritis (Guillain-Barré Syndrome): Brief Review of Literature with Report of 3 Cases. J. A. Jones, J. W. Holmes and Mary Weinstein.—p. 305.

Hyperglobulinemia. B. M. Kagan.—p. 309.

*Calcium Salts of Sulfadiazine and Sulfathiazole, with Particular Reference to Their Subcutaneous Administration. C. T. Nelson and W. W. Spink.—p. 315.

*Treatment of Pneumococcic Pneumonia with Sulfapyrazine. J. M. Ruegsegger, N. L. Brookens, M. Hamburger Jr. and Eda S. Grupen.—p. 323.

*Status of Sulfonamide Therapy in Malaria. C. E. Johnson Jr.—p. 327.

Prothrombin Studies Using Russell Viper Venom: VI. Stability of Thromboplastic-like Activity of Russell Viper Venom Under Various Conditions of Storage. R. C. Page and E. J. De Beer.—p. 336.

Effect of Arsenic (Fowler's Solution) on Erythropoiesis: Contribution to Megaloblast-Normoblast Problem. L. R. Limarzi.—p. 339.

Study of Hemoglobin Metabolism and Hematology in Case of Congenital Hemolytic Jaundice During (A) Clinical Crisis, (B) Repeated Transfusions and (C) Before and After Splenectomy. R. C. Lowe.—p. 347.

*Heart Size and Pulmonary Findings During Acute Coronary Thrombosis. E. Massie and W. C. Miller.—p. 353.

Case of Myocardial Infarction Masked by Bundle Branch Block but Revealed by Occasional Premature Ventricular Beats. W. Dressler. —p. 361.

Saccular Aneurysm of Abdominal Aorta: Report of Case with Terminal Anuria and Rupture into Duodenum. E. S. Howland and B. E. Sprofkin.—p. 363.

Survey of Protozoan Infection of Staff of Large General Hospital. M. M. Rothman and M. Laskey.—p. 369.

Perinephric Abscess—Previously Unreported Complication of Amebiasis. D. Kirsh and R. S. Diaz-Rivera.—p. 372.

Subcutaneous Administration of Calcium Salts of Sulfonamides.—According to Nelson and Spink, sodium salts of sulfapyridine, sulfathiazole and sulfadiazine have been administered extensively by hypodermoclysis at the University of Minnesota Hospital. Since local tissue reactions, tenderness and sometimes necrosis are provoked by concentrations exceeding 1 per cent, it was decided to investigate whether calcium salts of sulfadiazine and sulfathiazole could be given in higher concentrations. Calcium sulfadiazine was administered parenterally to 24 adults. Only a few observations have been carried out with calcium sulfathiazole on human subjects. The authors found that aqueous solutions of calcium sulfadiazine may be administered subcutaneouly or intravenously in concentrations up to 4 per cent with no ill effects. The pattern of absorption and excretion of calcium sulfadiazine as measured by the rise and fall of drug level in the blood does not differ significantly from that observed following the parenteral administration of comparable doses of sodium sulfadiazine. Preliminary clinical experience indicates that calcium sulfadiazine administered subcutaneously is effective in establishing and maintaining adequate blood levels of the drug. Aqueous solutions of calcium sulfathiazole administered subcutaneously resulted in local inflammation.

Sulfapyrazine in Pneumococcic Pneumonia.—Ruegsegger and his associates used sulfapyrazine in 105 cases of "typical" pneumonia. A blood culture and sputum sample were collected from each patient, but treatment was not delayed until the causative organisms were identified. The drug is an effective agent in the treatment of pneumococcic pneumonia, for the mortality in this series was only 4 per cent. The mortality among 24 bacteremic cases was 17 per cent. The only important toxic effect of the drug was on the kidneys. Evidence of transient renal damage was found in 9 per cent of the patients treated with 1 Gm. every four hours. In patients treated with 1 Gm. every six hours the only manifestation of renal injury was the occasional microscopic finding of small numbers of red blood cells. Other toxic effects commonly produced by sulfonamide drugs appeared but rarely in this series. One morbilliform rash and 1 instance of nausea and vomiting were believed to be due to sulfapyrazine.

Sulfonamide Therapy in Malaria.—Johnson observed the antimalarial action of sulfadiazine and sulfathiazole on neurosyphilitic patients. He selected sulfadiazine for his investigation because of its low toxicity. His studies were made on neurosyphilitic patients undergoing malarial therapy. Sulfadiazine exhibited an antimalarial action with a minimum of toxic reaction. It is taken by patients with less reluctance than is quinine. The relapse rate has been established at 23 per cent. The amount of treatment used appeared to have no relation to the relapse rate. Patients suffering relapses had five, eight and nine days of treatment. Relapses are controlled by a second course of sulfadiazine. No patient had a second relapse. The author thinks that the antimalarial action of sulfadiazine could be used to advantage by the military in malarious areas.

Heart Size During Acute Coronary Thrombosis.—Massie and Miller studied the hearts of 16 patients following unequivocal acute coronary thrombosis by teleoroentgenograms taken over periods extending from twelve hours to seven months after the acute attack. They did not observe any consistent change in cardiac size or shape. Eight of the patients showed no change in any of their entire series of films. Each of 4 other patients presented only one film with cardiac measurements significantly different from the others of their respective series, and these were taken at greatly varying intervals (three days to three months) after the attack with both increasing and decreasing measurements occurring. It is noteworthy that in the important first two weeks following the acute accident only 4 patients of the entire series had a change in cardiac measurements and in 2 they were increased while in the other 2 they were decreased. It is impossible to state from this study that there is any significant feature which characterized the 8 patients who showed a change in cardiac size following coronary thrombosis. Patients with significant change in cardiac size were somewhat more ill than the others. The roentgenologic aspects of pulmonary congestion in the first and second weeks following the coronary accident were especially noteworthy. Twelve patients showed roentgenologic evidence of such pulmonary involvement, whereas in only 7 of these did auscultation reveal the presence of basal rales. In 4 patients evidence of pulmonary congestion was lacking on both x-ray and physical examination.

Anesthesiology, New York

4:465-576 (Sept.) 1943

Comparison of Actions on Nerve Fibers of Certain Anesthetic Mixtures and Substances in Oil. D. Duncan and W. H. Jarvis.—p. 465.

Effects of Certain Premedicants on Traumatic Shock Produced in Animals Under Ether Anesthesia. C. D. Anderson and H. E. Essex.—p. 475.

Mechanism of Production of Spontaneous Cardiac Irregularities with High Concentration of Cyclopropane. W. V. Lee, O. S. Orth, C. P. Wangeman and W. J. Meek.—p. 487.

Practical Approach to Treatment of Shock. D. B. Kendrick Jr. and J. Reichel Jr.—p. 497.

Acute Pulmonary Edema—Case Report. Edith Eason and Mary Karp. —p. 508.

Observations on Wartime Anesthesia. F. W. Clement and C. K. Elder. —p. 516.

Present Status of Trichlorethanol. Evelyn H. Case.—p. 523.

Pharmacologic Studies in Search of Suitable Drug for Peridural Segmental Anesthesia. J. Abajian Jr.—p. 528.

Sodium Pentothal: Actual Experience in Combat Zone. A. T. Rose. —p. 534.

Annals of Surgery, Philadelphia

118:329-486 (Sept.) 1943

Regional Ileitis. J. W. Holloway.—p. 329.
Metastasizing Intracranial Tumors. K. H. Abbott and J. G. Love.—p. 343.
Conservation of Lung Tissue by Partial Lobectomy. B. Blades.—p. 353.
Metabolic Studies in Patients with Cancer of the Gastrointestinal Tract. I. Ariel, P. E. Rekers, G. T. Pack and C. P. Rhoads.—p. 366.
Congenital Duodenal Obstruction. C. G. Morlock and H. K. Gray.—p. 372.
Nonmeckelian Diverticula of the Jejunum and Ileum. R. E. Benson, C. F. Dixon and J. M. Waugh.—p. 377.
Dermoid Cyst of Pancreas. J. L. DeCourcy.—p. 394.
Spontaneous Rupture of Liver Complicating Pregnancy. L. Rademaker.—p. 396.
*Liver Necrosis in Burns. F. W. Hartman and H. L. Romence.—p. 402.
*Animal Experiments with Tannic Acid. R. D. Baker and P. Handler.—p. 417.
*Clinical Test for Differentiating Second from Third Degree Burns. J. A. Dingwall 3d.—p. 427.
Pilonidal Sinus. G. T. McCutcheon.—p. 430.
Synovial Cysts of the Popliteal Space: Clinical Significance and Treatment. G. E. Haggart.—p. 438.
*Hemangioendothelioma: A Tumor of Blood Vessels Featuring Vascular Endothelial Cells. A. P. Stout.—p. 445.
Venous Hemangioma of Skeletal Muscle. R. A. Light.—p. 465.
Venography. J. Mark.—p. 469.
A Subclavian-Aneurysm Cured by Cellophane Fibrosis. P. W. Harrison and J. Chandy.—p. 478.
The Coagulability of Venous Blood of Normal and Diseased Legs. B. G. P. Shafiroff, H. Doubilet, I. S. Barcham and Co Tui.—p. 482.

Liver Necrosis in Burns.—Hartman and Romence studied in dogs the effect on the liver (1) of burns alone, (2) of various types of protein coagulating chemicals, including tannic acid, (3) of burns treated with protein coagulating chemicals and (4) of tannates and the significance of their identification in the urine. Large experimental burns resulted in engorgement of the sinusoids of the liver, especially about the central veins, and compression of liver cells in this area. Introduction of coagulating agents either as a dressing for a burned or denuded area or as a subcutaneous injection increased the incidence of degeneration and necrosis of liver cells. The three coagulating agents used in the treatment of burns were the only ones that have increased the danger of clinical jaundice and liver insufficiency. These were tannic acid, ferric chloride and silver nitrate. Tannic acid used as a wet dressing for burns produced clinical jaundice and central liver necrosis. Tannic acid given subcutaneously produced liver necrosis in 25 per cent of the animals. With intraperitoneal injection, liver necrosis was produced in 33⅓ per cent. Quebracho tannin and tannic acid neutralized with sodium bicarbonate were more potent than tannic acid in the production of liver damage. Animals having burns treated with wet dressings of tannic acid or tanning preparations and those receiving subcutaneous injections of these preparations excrete relatively large amounts of tannates and gallates in the urine. The groups have the highest incidence of liver necrosis. Sodium tannate of p_H 9 does not coagulate protein readily and may be given in amounts of 10 to 20 cc. of the 7 per cent solution daily without reaction. Such injections have resulted in the consistent production of liver necrosis in rabbits and dogs with jaundice and death of the dogs. The excretion of tannates in the urine of animals receiving wet dressings or injections of tannic acid, coupled with the fact that these animals along with those receiving tannates intravenously have a high incidence of jaundice and liver necrosis, shows the etiologic relation of these tannates to liver lesions. Silver nitrate given subcutaneously produces necrosis and edema at the site of injection, with some degeneration, hemorrhage and liver necrosis. Clinical jaundice has not occurred, and death could not be charged to the liver damage. Ferric chloride introduced subcutaneously produces necrosis, edema and hemorrhage at the site of inoculation. Clinical jaundice occurs. The extensive central necrosis and hemorrhage in the liver must be considered as one of the causes of death.

Animal Experiments with Tannic Acid.—Baker and Handler injected neutralized tannic acid of p_H 7.2 subcutaneously and found that it was as damaging to the liver as tannic acid (U. S. P.) of p_H 3. Gallic acid introduced subcutaneously did not produce hepatic damage, indicating that it is not the gallic acid component which is responsible. Hepatic necrosis was produced in rats by removing the ventral skin, immersing the rat in a tannic acid bath for 15 minutes and washing the treated area with tannic acid the following day. Minor hepatic necrosis occurred in some of the rats when one fourth of the skin of the body was removed and solutions as low as 2.5 per cent were applied. Severe hepatic necrosis was produced by 20 per cent tannic acid applied to an area of the same size, and some of the rats which received this concentration died. In control experiments in which other rats were treated with water in the same manner no hepatic damage was noted. Tannic acid produced hepatic necrosis whether aqueous solutions or ointments were used. Tannic acid produced necrosis of viable tissue over the denuded areas sometimes with a concentration of 10 per cent and regularly with concentrations greater than 10 per cent. Direct application of these experimental results to the treatment of human burns with tannic acid should be made with extreme caution, especially those dealing with absorption from a skinned area, since absorption from burns has not been investigated in this study.

Test for Differentiating Second from Third Degree Burns.—Dingwall describes a method of distinguishing second from third degree burns. He considers a second degree burn one in which not all of the skin epithelium is destroyed, thus permitting regeneration if only from the cells of the hair follicles and sebaceous glands. A third degree burn embodies complete destruction of the epithelium and postulates granulation. Fluorescein when administered intravenously diffuses throughout the vascular tree and, after a sufficient time, some of the drug enters the intercellular fluid and stains the cells. In normal skin it permeates into all the minute vessels of the corium, even the subepithelial capillaries, and may be visualized on the surface. If enough tissue destruction has occurred, as in a third degree burn, vascular transportation of the drug to the upper and visible skin layers is impossible. In any one area some vessels may be intact while others are destroyed, and it is here that a mottling of color occurs suggestive of a deep second degree burn as opposed to the diffuse yellow of a more superficial injury. With some practice it is easy to appreciate this difference. The author has given no more than 10 cc. of sodium fluorescein to any 1 patient. It appears to be a safe drug for intravenous use in such dosage, the only untoward symptoms being a transient nausea if given too fast.

Hemangioendothelioma.—Malignant tumors of blood vessels are rare. There are three malignant vascular tumors characterized by the formation of vascular tubes but with different cells playing a dominant role. There is the group featuring the pericyte, for which the name hemangiopericytoma has been suggested. This group includes the glomus tumors and, while the majority of them are benign, the existence of a malignant variant is established. Since smooth muscle forms a part of many blood vessels, a vascular form of leiomyosarcoma might be expected. The third group contains the majority of malignant vascular tumors. The important cell responsible for its aggressive growth and metastases is the endothelial cell. The author assembled 18 such tumors. Eleven of the patients were females and seven males. The age at onset varied from birth to 66 years; 9 were less than 30 years of age, but 6 were over 50. The majority of tumors have been in the spleen, the liver, the bones or the skin and subcutaneous tissues. Growth is infiltrative in character. The tumors are usually vascular, with a tendency to bleed into themselves or from the surface. Metastasis is common and is generally through the blood stream, although occasionally it progresses also through the lymphatics. The tumors are made up of vascular tubes which have a tendency to anastomose and are lined with hyperchromatic atypical endothelial tumor cells. They may form a single layer, be heaped up in several layers or even multiply to such a degree that the vascular tubes are completely obscured, when ordinary stains are used, and can be demonstrated only by silver connective tissue impregnations. No tumor should be called a hemangioendothelioma unless it fulfils these microscopic criteria and, conversely, if a tumor does show these characteristics it should be recognized as a malignant or potentially malignant tumor. There is no such anomalous entity as a benign metastasizing hemangioma. Two other tumor forms have been confused with this one, namely chorioepithelioma and hypernephroid carcinoma. The hemangioendothelioma of infants apparently is better differentiated and probably less malignant, although it may kill by the multiplicity of its tumors. The

silver reticulin stain is of particular assistance in distinguishing hemangioendothelioma from hemangiopericytoma, since endothelia are found inside and pericytes outside the reticulin sheath of the vessels. Demonstration that tumor cells behave in vitro like endothelia provides further confirmatory evidence.

Archives of Neurology and Psychiatry, Chicago

50:233-380 (Sept.) 1943

Tuberous Sclerosis. A. T. Ross and W. W. Dickerson.—p. 233.
Histologic Studies of Brain Following Head Trauma: III. Post-Traumatic Infarction of Cerebral Arteries, with Consideration of Associated Clinical Picture. J. P. Evans and I. M. Scheinker.—p. 258.
Studies in Diseases of Muscle: XIV. Progressive Muscular Atrophy of Peroneal Type Associated with Atrophy of Optic Nerves: Report on Family. A. T. Milhorat.—p. 279.
Genealogic and Clinicopathologic Study of Pick's Disease. N. Malamud and R. W. Waggoner.—p. 288.
Convulsant Shock Treatment of Patients with Mental Disease by Intravenous Injection of Acetylcholine: Electroencephalographic and Electrocardiographic Observations. M. M. Harris and B. L. Pacella.—p. 304.
Autonomic Balance in Patients Treated with Insulin Shock as Measured by Mecholyl Chloride: Preliminary Report. L. Gold.—p. 311.
Nature of Painful Vasodilatation in Causalgic States. G. de Takats.—p. 318.
Meningioma of Thirty Years' Duration: Report of Case. R. B. Cloward and R. D. Kepner.—p. 327.
Multiple Meningiomas: Removal of Four Tumors from Region of Foramen Magnum and Upper Cervical Region of Cord. C. F. List.—p. 335.
Recurrent Autonomic Phenomena Associated with Exacerbations of Post-encephalitic Parkinsonism: Report of Case. M. Ostow.—p. 342.

Connecticut State Medical Journal, Hartford

7:611-676 (Sept.) 1943

Medical Care Insurance—Compulsory or Voluntary. L. H. Pink.—p. 619.
Public Medical Care: Some Practical Considerations. H. J. Davis.—p. 622.
Connecticut State Medical Society from 1860 to Present. S. B. Weld.—p. 639.
Actuarial Experience Administering Surgical Obstetric Contract, with Reference to Premiums, Benefits and Black Ink on Ledger. J. C. Ketchum.—p. 650.

Georgia Medical Association Journal, Atlanta

32:289-316 (Sept.) 1943

Medical Achievements in Present War. L. Sheldon Jr.—p. 289.
*Riboflavin Deficiency verus Perlèche: Differential Diagnosis of Fissuring of Labial Commissures. P. H. Nippert and A. P. McGinty.—p. 295.
Use of Vitamin C and Nicotinic Acid in Bright's Disease. J. W. Daniel.—p. 297.
Osteomyelitis. J. R. Lewis Jr. and W. J. Senter.—p. 302.
Resuscitation of Newborn. T. S. Gatewood.—p. 306.

Riboflavin Deficiency versus Perlèche.—Nippert and McGinty point out that fissuring at the corners of the mouth is not always due to riboflavin deficiency. There is an intertrigo of the labial commissures, designated as perlèche ("to lick"), which may be mistaken for riboflavin deficiency. In children perlèche often develops because of an abnormal amount of moisture at the angles of the mouth, a condition resulting from the habit of licking. In adults the lesion is most frequently seen as a result of a narrowed bite, either because the natural teeth have been worn down or because of improperly fitting artificial dentures. The narrowed bite produces an additional fold at the labial commissures; the skin in this area then, because of constant moisture from saliva, becomes macerated, fissured and infected. Cheilosis of ariboflavinosis is usually accompanied by other signs of the deficiency and is cured by an adequate consumption of riboflavin. The cheilosis of perlèche is relieved only by correcting the anatomic defect that resulted in the intertrigo; this will usually require new, well fitting dentures. Three cases are presented to illustrate the differential diagnosis.

Illinois Medical Journal, Chicago

84:173-228 (Sept.) 1943

Thyroid in Childhood. A. J. Carlson.—p. 192.
Experimental Cretinism. M. M. Kunde.—p. 192.
Pituitary-Thyroid Relations. H. G. Swann.—p. 197.
Growth and Development in Graves' Disease, with Report of Puerile Case Associated with Unverified Thyrotropic Pituitary Adenoma. H. P. G. Seckel.—p. 200.
Diagnosis and Prognosis of Thyroid Deficiency in Childhood. I. P. Bronstein.—p. 206.
Observations on Bacterial Allergy in Scarlet Fever. J. A. Conner and A. Milzer.—p. 214.

Journal of Clin. Endocrinology, Springfield, Ill.

3:445-482 (Aug.) 1943

Further Consideration of Cushing Syndrome. K. W. Thompson and Louise Eisenhardt.—p. 445.
Oral Therapy with Sodium Estrone Sulfate: I. Induction of Bleeding and Cycle Regulation in Functional Amenorrhea. V. H. Turner, C. D. Davis and E. C. Hamblen.—p. 453.
Id.: II. Induction of Hemostasis and Cycle Regulation in Functional Uterine Hemorrhage. V. H. Turner, C. D. Davis and E. C. Hamblen.—p. 455.
Contribution to Treatment of Amenorrhea. M. Berlind.—p. 457.
Influence of Thyroid Activity on Renal Function. E. M. MacKay and J. W. Sherrill.—p. 462.
Pregnancy Occurring in Cretinism and in Juvenile and Adult Myxedema. G. Parkin and J. A. Greene.—p. 466.
Insulin Lipohypertrophy. M. G. Goldner.—p. 469.
Endometrial Biopsy. J. C. Burch and Doris Phelps.—p. 475.

Journal Industrial Hygiene & Toxicology, Baltimore

25:253-322 (Sept.) 1943

*Protection of Radium Dial Workers and Radiologists from Injury by Radium. R. D. Evans.—p. 253.
Protection of Radium Dial Painters—Specific Work Habits and Equipment. G. E. Morris, I. R. Tabershaw, J. B. Skinner and M. Bowditch.—p. 270.
Mercury Vapor Measurement: Radioactive Method. C. Goodman, J. W. Irvine Jr. and C. F. Horan.—p. 275.
Sensory Response to Certain Industrial Solvent Vapors. K. W. Nelson, J. F. Ege Jr., M. Ross, L. E. Woodman and L. Silverman.—p. 282.
Glucuronic Acid in Urine as Measure of Absorption of Certain Organic Compounds. W. Deichmann and G. Thomas.—p. 286.
New Type Adhesive Impingement Dust Counter. F. B. Rowley and R. C. Jordan.—p. 293.
Dust Reduction at Coalface by Means of Water Sprays. C. G. Warner.—p. 303.
Ventilation Requirements for Solvents in Industrial Tanks. L. Silverman.—p. 306.

Protection of Radium Workers.—Evans points out three health hazards in the handling of radium and radium products: (*a*) radium poisoning from ingestion or inhalation of radium, (*b*) respiratory lesions from inhaled radon and (*c*) radiation injury from overexposure to gamma rays. Inhalation of dust containing traces of dry radium paint must be guarded against as carefully as the ingestion of bits of radium paint. Under the best working conditions now existing in the dial painting industry about 15 per cent of the workers accumulate more than the tolerance dose of radium. These persons can be successfully identified by routine tests every four to six months of the radon content of their exhaled air. Those who accumulate more than the tolerance quantity of radium, if identified promptly, can be shifted to nonradium work until their radium content falls to a safe level by natural elimination. They may then safely return to radium work. Inspectors of radium dials and pointers, and those who finish, balance or assemble instruments are often exposed to greater hazards than the dial painters, because of the greater chances for inhaling dust and dry flakes of radium paint. Power ventilation designed to remove radon and radium dust from the workroom air is essential. Samples of room air should be analyzed for radon at least every six months and also whenever changes are made in the ventilating system or in the type of work done in each room. Meticulous housekeeping, including the performance of all cleaning operations as wet processes, is the essence of protection from radium ingestion and inhalation.

Journal-Lancet, Minneapolis

63:225-268 (Aug.) 1943

Presidential Address. A. R. Sorenson.—p. 241.
Epidemic Encephalitis in North Dakota and Minnesota 1941: Studies on Etiology, Epidemiology and Serum Treatment. E. C. Rosenow and H. W. Caldwell.—p. 247.
Observations on Selenium Poisoning in South and North America. R. E. Lemley.—p. 257.

63:269-306 (Sept.) 1943

Induction and Stimulation of Labor with Ergot. C. J. Ehrenberg and J. A. Haugen.—p. 290.
Minnesota Multiphasic Personality Inventory. B. C. Schiele, A. B. Baker and S. R. Hathaway.—p. 292.
Report on Heart Program of Bureau for Crippled Children Medical Unit (Abridged): Division of Social Welfare; Feb. 16, 1942 to Feb. 15, 1943. M. J. Nydahl.—p. 297.

Kansas Medical Society Journal, Topeka

44:253-288 (Aug.) 1943

Unusual Fracture of Second Cervical Vertebra. H. L. Collins.—p. 253.
Cocaine as Topical Anesthetic. P. W. Miles.—p. 254.
Treatment of Psychoneuroses of War. R. P. Knight.—p. 257.
Multiple Hepatic Abscesses in Typhoid Fever with Recovery. R. H. Major.—p. 265.

44:289-324 (Sept.) 1943

Artificial Respiration in Poliomyelitis: Civil Air Patrol Method. L. K. Zimmer.—p. 289.
*Effect of Sulfonamide Therapy on Common Cold. A. J. Kauvar and F. R. Mount.—p. 290.
Fundamentals of Psychiatry: X. Personality Structure. W. C. Menninger.—p. 294.
Erythroleukemia. R. H. Major and C. J. Weber.—p. 299.

Sulfonamide Therapy in Common Cold.—Kauvar and Mount studied 127 patients with upper respiratory infections of unknown causation. Seventy-five cases were treated symptomatically and 52 comparable cases were treated in addition with sulfonamides. There was no evidence that the use of chemotherapy influenced the course of the disease or prevented complications. Complications secondary to chemotherapy administration tend to be more frequent and more severe than those following the usual upper respiratory infection. Use of chemotherapy in a trivial case may sensitize the individual so that its subsequent use is contraindicated in a more serious illness in which it is urgently needed.

Maine Medical Association Journal, Portland

34:169-188 (Sept.) 1943

Peripheral Vascular Disease and Its Treatment by Interruption of Sympathetics. S. C. Harvey.—p. 169.
Portland Charitable Dispensary and Portland Tuberculosis Class. T. J. Burrage.—p. 174.

Military Surgeon, Washington, D. C.

93:237-338 (Sept.) 1943

Rickettsial Diseases. E. E. Hume.—p. 237.
Methyl Bromide Gas as Fumigant for Control of Bedbugs (Cimex Lectularius L.) at Fort Leonard Wood, Missouri. L. O. Tarleton and L. B. Dworsky.—p. 251.
Survey of Epidemic of Acute Respiratory Cases in Aetivating and Training Area, Fort Lawton, Washington. A. G. Hulett.—p. 265.
Preservation of Wassermann Sera by Means of Sulfanilamide. J. P. Crawford and L. D. Hertbert.—p. 274.
Treatment of Dermatitis Venenata. S. W. French and L. J. Halpin.—p. 275.
Double Bunking the Army. E. S. Linthicum.—p. 279.
Cineplastic Operation in Rehabilitation of Amputation Cases. H. H. Kessler.—p. 281.
Corneoscleral Suture in Military Ophthalmology. E. P. Burch.—p. 286.
*Refrigeration Therapy in Vascular Trauma. W. F. Bowers.—p. 289.
Physical Medicine in Maxillofacial Injuries. H. H. Weisengreen.—p. 294.
*Treatment of Fusospirochetal Infections of Mouth and Throat with Sulfathiazole. F. G. Hirsch and C. L. Spingarn.—p. 299.
Practical Aspects of Diagnosis and Surgical Treatment of Meniscus Injuries H. M. Childress and W. H. Hagen.—p. 301.
Management of Special Diets in Cantonment Hospital. A. T. Haerem.—p. 305.
Nontraumatic Tears of Tibial Fascia. W. B. Schaefer.—p. 308.
Double March Fracture: Case Report. S. R. Terhune and T. S. Eddleman.—p. 310.
Universal Shock Block. R. P. Howell and G. R. Benton Jr.—p. 312.
Simplified Fracture Table of All Wood Construction. C. U. Hauser and W. F. Martin.—p. 313.
Mobile Field Dispensary for Use in Army Industrial Plants and Depots. J. S. Cullyford, E. B. Ley and F. J. Vintinner.—p. 317.

Refrigeration Therapy in Vascular Trauma.—Bowers reports 4 cases in which refrigeration was used. Refrigeration decreases metabolic needs so that a damaged circulation may be adequate. The application of ice packs to the injured extremity will gradually render the part anesthetic and will allow a painless transportation of the injured soldier. This is a considerable factor in the reduction of secondary collapse from continued pain. Bacterial growth is inhibited by refrigeration therapy due to decreased oxidation; enzymes and toxins are temporarily inactivated. This means that a dirty wound is maintained in a stationary condition until débridement can be carried out. If refrigeration is continued after definitive treatment because of irreparable vascular damage, such therapy must be continued until collateral circulation is established, until vasospasm is overcome, until thrombosed vessels recanalize or until the criteria of failure are present. Refrigeration therapy must be withdrawn slowly to prevent rapid spread of gangrene or infection.

Sulfathiazole in Fusospirochetal Infections of Mouth and Throat.—According to Hirsch and Spingarn, infections of the mouth and throat with the fusospirochetal group of bacteria are encountered frequently in military medicine. In the first world war they were common among the enlisted personnel, especially under field conditions, and were known as "trench mouth." The causative organisms are present in small numbers as harmless saprophytes in many normal mouths, but they may become pathogenic in the presence of predisposing conditions such as trauma to the oral mucosa by neglect of the hygienic care of the mouth and teeth and a lowering of the general health and resistance. The disease may take several forms. Commonly one encounters (*a*) gingivitis, marked by numerous ulcerations of the peridental tissues with reddening and swelling of the gums, which bleed easily, and (*b*) angina, characterized by ulcerations of the tonsils and pharynx. A variety of therapeutic agents have been used to treat infections of this type. This series consists of 8 young men with fusospirochetal disease of the mouth or throat. Moderate doses of sulfathiazole (4 Gm. daily) for periods of two to six days were effective in controlling fusospirochetal infections of the mouth and throat. This therapy is well tolerated and produces a prompt relief of symptoms and healing of the lesions. The treatment has the advantages of simplicity and speed.

Minnesota Medicine, St. Paul

26:753-848 (Sept.) 1943

Differentiation of Endometriosis and Carcinoma of Sigmoid Colon. E. L. Jenkinson and W. H. Brown.—p. 773.
Practical Applications of Routine Blood Count in the Newborn with Special Reference to Obstetric Nursery. F. C. Neff.—p. 779.
Transurethral Resection: Autopsy Findings in 26 Cases. A. N. Collins.—p. 782.
Damage to Spinal Cord and Meninges Following Spinal Anesthesia—Clinicopathologic Study. G. R. Kamman and A. B. Baker.—p. 786.
Minnesota Soldiers Discharged for Mental Disability. R. C. Gray.—p. 791.
Influence of War on Medicine. B. C. Crowell.—p. 795.
*Thiamine Hydrochloride—Aid in Solution of Mosquito Problem. W. R. Shannon.—p. 799.
History of Medicine in Dodge County. J. Eckman and C. E. Bigelow.—p. 805.

Thiamine Hydrochloride and Mosquito Problem.—Shannon reports results obtained in combating the mosquito pest by the administration of large doses of thiamine hydrochloride. He describes 10 cases which show that thiamine hydrochloride in adequate dosage, administered either by mouth or by injection, is capable of reducing the mosquito hazard in at least three ways: (1) It diminishes the approach of the mosquito toward the protected individual, (2) it lessens and may entirely combat the itching that usually follows the bite, (3) it minimizes and often entirely prevents the formation of a papule at the site of the bite. Indeed it causes a rapid recession of welts even of long standing.

New England Journal of Medicine, Boston

229:387-422 (Sept. 2) 1943

Differential Diagnosis of Chronic Bright's Disease: Clinicopathologic Correlation. J. S. Mansfield, G. K. Mallory and L. B. Ellis.—p. 387.
*Familial Auricular Fibrillation. L. Wolff.—p. 396.
Acute Pneumonitis and Pericarditis: Report of Case. C. C. Fuller and J. W. Quinlan.—p. 399.
Bright's Diseases (concluded). S. E. Bradley.—p. 402.

Familial Auricular Fibrillation.—Wolff points out that, although auricular fibrillation is one of the commonest disorders of the cardiac mechanism, its familial occurrence is rare. He reports observations on 3 brothers with auricular fibrillation mentioned earlier and on 2 new cases in brothers. These 2 instances of familial occurrence of auricular fibrillation are unique in medical literature. All 3 of the first set of brothers had permanent auricular fibrillation. Arrhythmia was constantly present years before a diagnosis of fibrillation was made, suggesting that an abnormal mechanism was present at birth or developed early in life. Congenital auricular fibrillation is suggested particularly in 1 case. The 3 brothers lived normal lives, and 2 of them engaged in strenuous sports without difficulty. Although the arrhythmia was untreated, the ventricular rates were slow, even after exercise. A likely explanation for the slow ventricular rate was furnished by the evidence of a strongly preponderant vagal tone, which also may have been

a factor in the production of auricular fibrillation. The author suggests that an increased vagal tone may be an etiologic factor in the production of auricular fibrillation in certain cases. Auricular fibrillation, even when untreated and of many years' duration, is entirely benign, provided the ventricular rate is slow and embolism does not occur. Under these conditions, auricular fibrillation does not cause cardiac enlargement. The combined administration of digitalis and quinidine for abolishing auricular fibrillation was in these cases superior to the use of quinidine alone.

Public Health Reports, Washington, D. C.

58:1329-1364 (Sept. 3) 1943

Patient Load of Physicians in Private Practice: Comparative Statistical Study of Three Areas. A. Ciocco and I. Altman.—p. 1329.

58:1365-1392 (Sept. 10) 1943

Surveys of Liquid Wastes from Munitions Manufacturing. R. S. Smith and W. W. Walker.—p. 1365.
Twenty Year Survival of Virulent Bacillus Pestis Cultures Without Transfer. E. Francis.—p. 1379.

58:1393-1428 (Sept. 17) 1943

Surveys of Liquid Wastes from Munitions Manufacture. R. S. Smith and W. W. Walker.—p. 1393.

Surgery, St. Louis

14:321-486 (Sept.) 1943

Surgery of Terminal Ileum, Cecum and Right Colon. A. O. Whipple. —p. 321.
Blood Supply of Large Bowel with Reference to Resection. A. O. Singleton.—p. 328.
Consideration of Elective Surgical Procedures in Various Segments of Colon. T. E. Jones.—p. 342.
*Carcinoma of Colon. A. W. Allen.—p. 350.
Cancer of Colon. M. M. Zinninger and P. I. Hoxworth.—p. 366.
Carcinoma of Colon and Rectum: Report of 503 Patients Treated at Lahey Clinic, 1938-1941 Inclusive. R. B. Cattell.—p. 378.
*Management of Polyps Occurring in Rectum and Colon. V. C. David. —p. 387.
New Practical Sigmoidoscope. P. G. Wakeley.—p. 395.
Anterior Resection of Rectosigmoid and Upper Rectum with Reestablishment of Continuity. L. S. Fallis.—p. 397.
Primary Resection (Closed Anastomosis) of Colon and Rectosigmoid: Including Description of Abdominoanal Methods for Restoration of Continuity Accompanying Excision of Carcinoma of Rectal Ampulla. O. H. Wangensteen.—p. 403.

Carcinoma of Colon.—Allen states that carcinoma of the colon accounts for at least 11 per cent of deaths from cancer in the United States. The concept of resectability should be substituted for operability. In his 186 cases of colonic cancer 91 per cent were resectable. Mortality and morbidity are directly related to resectability. Immediate removal of the growth is not as important as proper preoperative preparation. This includes the use of sulfonamides, cleansing the involved bowel, the preliminary use of the Miller-Abbott tube and supportive measures. Preliminary ileotransverse colostomy with aseptic suture is advocated for lesions of the right colon and the proximal third of the transverse colon. Preliminary tube cecostomy is advocated for lesions of the remaining colon. These procedures will increase the resectability rate in this group of patients, which offsets the added morbidity. It also appears to reduce the mortality rate. Resection with immediate aseptic anastomosis is the author's method of choice for the second stage. The Parker-Kerr type of anastomosis has been satisfactory to him. He recommends delayed closure of the abdominal wound by Coller's technic forty-eight hours after resection.

Management of Polyps in Rectum and Colon.—According to David, areas of hyperplasia, pedunculated adenomas and sessile papillomas are common tumors in the colon. Hyperplasia of the bowel mucosa gives no symptoms and is found in the course of proctoscopy, in examination of surgically removed segments of bowel, or at necropsy. Adenomas make their presence known by bleeding, protrusion from the rectum if they are low in the bowel, and cramplike pains due to attempts of the bowel to push them along, and occasionally by becoming an apex of an intussusception. The symptoms of villous tumors or papillomas are much the same as adenomas except that they are usually associated with the passage of a large amount of mucus. Polyps of the colon and rectum should be radically destroyed or removed, because of their tendency to malignant degeneration. Many can be handled by fulguration and local removal but, when necessary, more radical surgery is indicated.

Texas State Journal of Medicine, Fort Worth

39:275-322 (Sept.) 1943

Classification of Bone Tumors. G. T. Caldwell.—p. 282.
X-Ray Treatment of Bone Tumors. C. L. Martin.—p. 285.
Diagnosis in Primary Bone Tumors. W. B. Carrell.—p. 289.
Indications for Surgery in Bone Tumors. B. L. Coley.—p. 290.
Management of Cardiac Arrythmias. A. W. Harris.—p. 293.
Treatment of Osteomyelitis. G. W. N. Eggers and M. D. Knight. —p. 297.
Leber's Disease: Report of 4 Cases in One Family. C. S. Alexander. —p. 301.
Doctor and Postwar World.—p. 303.
Suggested Procedures for Control of Typhus Fever. G. W. Cox.—p. 305.

United States Naval Med. Bulletin, Washington, D. C.

41:1213-1512 (Sept.) 1943. **Partial Index**

Medical Department of Battleship in Action. J. A. Syslo.—p. 1213.
War Wounds of Head. J. T. B. Carmody.—p. 1227.
Filariasis in Defense Force, Samoan Group: Preliminary Report. J. G. Dickson, R. W. Huntington Jr. and S. Eichold.—p. 1240.
Absence of Skin Irritants in Contents of Vesicles. M. B. Sulzberger and J. H. Katz.—p. 1258.
Low Back Pain and Sciatica, with Special Reference to Roentgen Interpretation. H. F. Hare and L. W. Langs.—p. 1263.
Pilonidal Cysts and Sinuses in Navy. W. Z. Lane.—p. 1284.
Combat Fatigue and War Neurosis (concluded). G. N. Raines and L. C. Kolb.—p. 1299.
Electroencephalography in Selection of Naval Recruits. P. Solomon, H. I. Harris, C. L. Wittson and W. A. Hunt.—p. 1310.
Detection of Malingering Through Psychometric Tests. W. A. Hunt and H. J. Older.—p. 1318.
Management of Navy Personnel with Rheumatic Fever: II. A. F. Coburn.—p. 1324.
Care of Injured Hand. W. H. Requarth.—p. 1329.
Injuries of Semilunar Cartilages of Knee. T. H. Peterson and J. J. Lille.—p. 1336.
*Ocular Pathology in Various Types of Dietary Deficiencies with Particular Emphasis on Arteriolar Sclerosis: Experimental Study. A. A. Knapp and S. N. Blackberg.—p. 1339.
Laboratory Aids in Treatment of Shock State. H. R. Brown Jr. —p. 1345.
*Allergic Reactions to Dried Human Plasma. W. J. Colonnell.—p. 1356.
Sterilization Process for Powdered Sulfonamides. L. A. McClintock and R. H. Goodale.—p. 1360.
Treatment of Chronic Gonorrhea with Combined Sulfathiazole and Intravenous Typhoid Vaccine. E. A. Hand.—p. 1365.
Studies in Maintenance of Instrument Sterility. S. R. Howell.—p. 1370.
Sodium Pentothal Anesthesia in Intraoral Surgery at Sea. C. R. Carr and D. E. LaMothe.—p. 1374.
Nasal and Pharyngeal Irritation from Contact with Sucrose Octa Acetate Among Operators of Compressed Air Hammers. F. J. Viles.—p. 1378.

Ocular Pathology in Dietary Deficiencies.—Knapp and Blackberg report that lesions resembling senile arteriolar sclerosis in man were produced in the eyes of rats suffering from various types of malnutrition. Faulty nutrition, irrespective of whether the deficiency was caused by a lack of adequate caloric intake, vitamin A or vitamin B complex consistently produced increased light reflex, pallor and uniform attenuation of the arterioles along their entire course. In previous experiments the authors observed that in vitamin D deficiency similar pathologic changes were produced. The arteriolar sclerosis induced was not specific for any vitamin deficiency but rather followed a general nonspecific disturbance of the cellular nutrition.

Allergic Reaction to Dried Human Plasma.—Colonnell points out that scattered reports of reactions to pooled blood plasma have appeared but that no satisfactory explanation has been given. He reports a case which demonstrates the remote possibility of reactions with pooled dried blood plasma. The fact that thousands of plasma transfusions have been given without reactions is probably due to the caution in collecting blood and the dilution factor in pooling. The questioning of blood donors as to allergy, the taking of blood after a short fast and the refusing of blood from individuals receiving any form of injection treatment is evidence of the safety of administration of plasma under proper supervision. The presentation of this case history may throw some light on the few reactions which have occurred, and it should impress the necessity of having epinephrine handy when blood plasma is to be used. It also demonstrates the presence of an allergen (ragweed) in pooled human plasma.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:257-288 (Aug. 28) 1943

Surgical Treatment of Bronchial Carcinoma. R. C. Brock.—p. 258.
*Explosive Epidemic of Sonne Dysentery. C. A. Green and M. C. MacLeod.—p. 259.
Infective Hepatitis Treated with Glucose, Insulin and Ascorbic Acid. D. R. MacDonald.—p. 261.
Liver Deficiency Anaemia in Case of Acute Infective Hepatitis. J. N. Hill and W. Hausmann.—p. 262.
*Etiology of Fibrositic Nodule: Clinical Contribution. W. S. C. Copeman.—p. 263.
*Vitamins and Physiologic Function. G. N. Jenkins and J. Yudkin.—p. 265.
Cry of Child in Utero. I. M. Jackson.—p. 266.

Explosive Epidemic of Sonne Dysentery.—Green and MacLeod describe an epidemic due to Bacterium sonnei in which the possibility of water borne infection was subsequently supported by laboratory evidence. The outbreak involved approximately 400 cases. The circumstances under which B. sonnei was isolated from a sample of water precluded the possibility of a sampling error. A disturbing feature was the fact that the sample of water satisfied the usual standards for purity and that 0.15 part per million residual chlorine was still present. This appeared to be a direct contradiction until it was found experimentally that B. sonnei could survive after treatment with this strength of chloramine for periods longer than those applicable to much of the water. The position was rendered more dangerous by the fact that the chlorine-ammonia ratio of 2:1 was such as to delay considerably the sterilization process. The apparent connection observed between one particular milk supply and a group of cases was interesting in that the dairyman concerned was in the habit of rinsing his bottles with cold tap water after they had been sterilized by steam and probably introduced the infection to his supply in that manner. Flies were considered as possible vectors, but when the epidemic had practically subsided the usual summer increase in the fly population developed without stimulating further infection. This appeared to minimize the importance of flies in this particular epidemic.

Etiology of the Fibrositic Nodule.—Copeman relates that, in a recent epidemic of influenza in which he examined 40 cases, lumbar and other pain was a prominent feature. It was observed that the pain was also referred from small hypersensitive areas in the muscles. These were indistinguishable from "rheumatic" myalgic spots. On reexamination of the patients after one and two months these spots were still found to be present, although in diminishing numbers. None of these patients had a previous rheumatic history. Myalgic spots which had arisen during influenza were reactivated in one patient by an attack of mumps. In another, this occurred as the result of the artificial induction of sandfly fever. It appears that myalgic spots can arise in the course of acute influenza and that these will persist in a proportion of cases. They can be reactivated by infections of other types. Rheumatic pains are a characteristic sequel of many of the exanthems, mostly those of virus origin. Observation has shown that these pains, which tend to arise in a less acute manner, are also generally of the focal type. It is therefore suggested that the myalgic spots which form the basis of many of the rheumatic syndromes of later life are sometimes a legacy from acute infections in earlier years. The victims are often unaware of their presence until they become activated by factors such as chill, trauma or focal sepsis. These should consequently be regarded as secondary and no longer causative.

Vitamins and Physiologic Function.—Jenkins and Yudkin tested 178 school children aged 11 and 12, about half of whom had received vitamin supplements daily at school for one year. The supplements provided each school day were 5,000 international units of vitamin A, 1 mg. of vitamin B_1, 25 mg. of vitamin C and 500 international units of vitamin D, the average addition over the year being about a half of the daily requirements of these substances. No difference was observed between the control group and the supplemented groups in resting pulse rate, vital capacity, breath holding or 40 mm. endurance test. The authors point out that, if they accept the validity of the observations of the Manchester investigators, the fact that vitamin supplements did not induce such changes in physiologic function in their subjects might possibly be due to the children not having been deficient in these nutrients before the administration began. This is supported by the fact that there was also no improvement in other respects after the year's dosing. Gain in height and weight, strength of grip, hemoglobin, intelligence, educational attainment and dark adaptation were no different in those children receiving the supplement from what they were in those receiving the control pellets.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

50:241-316 (Aug.) 1943

Phases of Maturation, Fertilization and Early Development in Man. W. J. Hamilton, Josephine Barnes and Gladys H. Dodds.—p. 241.
Renal Failure Following Abortion: 2 Cases. Phillis Dingle.—p. 246.
Reactions to Pressor Substances in Normal and Toxemic Women. F. J. Browne.—p. 254.
Delivery of Fetal Head in Occipitoanterior Positions of Vertex. W. Hunter.—p. 260.
Further Study of Clinical and Pathologic Properties of Malignancy. J. R. Goodall.—p. 271.
Obstructed Labor Due to Dysgerminoma: Case. D. A. Abernethy.—p. 278.
*Full Time Hydatidiform Mole with Central Placenta Previa: Case. A. J. Herring.—p. 281.
Response of Isolated Muscle Strips from Upper and Lower Segments of Human Full Time Pregnant Uterus to Pitressin and to Pitocin. C. S. Russell.—p. 287.
Antenatal Thrombophlebitis. J. P. Maxwell.—p. 299.

Full Time Hydatidiform Mole with Central Placenta Previa.—Herring reports a case of full time hydatidiform mole without a fetus but with a central placenta previa and associated severe toxemia. A cesarean section was performed because of the central placenta previa, which revealed the true condition. Hyperpyrexia and breast secretion were of interest after the operation. A follow-up of thirteen months showed persistently negative Aschheim-Zondek tests and a return to normal menstrual periodicity and good health.

Revista Médica de Chile, Santiago

71:519-614 (June) 1943. **Partial Index**

Hormones of Digestive Apparatus. B. A. Houssay.—p. 519.
Value of Sulfonamide Therapy in Perinephritis. I. Díaz Muñoz and A. Vargas Molinare.—p. 529.
Arthroplasty of Elbow. R. Urzua and G. Vergara.—p. 536.
*Blood Transfusions in Sydenham's Chorea. O. Salas C. and E. Uiberall.—p. 540.
Prothrombinemia and Its Response to Vitamin K in Jaundice. H. Alessandri, H. Ducci and J. Motlis.—p. 549.
Action of Certain Drugs on Oddi's Sphincter. R. Yazigi.—p. 555.
Meningococcic Meningitis. B. Viel and R. Alvarado.—p. 559.
Treatment of Pulmonary Suppurations. H. Oyanguren M.—p. 568.

Blood Transfusions in Treatment of Chorea.—Salas C. and Uiberall employed blood transfusions in the treatment of 22 patients with chorea. The disease was severe in 7 cases, moderately severe in 11 and mild in 4. The ages of the patients varied between 7 and 22 years. Five had a history of rheumatism and 12 had clinical signs of past or present rheumatic disease. From 100 to 150 cc. was the average amount of transfused blood, but in a few cases up to 250 cc. was given. The transfusions were given at intervals of three or four days. Generally a total of three was made, but in stubborn cases as many as five. Cure was obtained in 15 cases, great improvement in 4, mild improvement in 1 and no effect in 2. The favorable results had no relation to the seriousness of the disease; on the contrary, the blood transfusions seemed to give the most rapid results in the very acute and grave cases, whereas the sequels of the acute states seemed to be less amenable to this treatment. The authors advise against tonsillectomy during the acute stage of chorea, considering it an excessively grave intervention. They recommend it after the disease has been cured in order to prevent further rheumatic complications. This is based on the fact that the majority of cases of Sydenham's chorea are of rheumatic origin. The mechanism of blood transfusions in chorea is like that of pyretotherapy. It involves a reactivation of the cellular metabolism by proteins introduced by the parenteral route, the production of immunizing bodies and a focal reaction with hyperemia.

Book Notices

Distribution of Health Services in the Structure of State Government. By Joseph W. Mountin and Evelyn Flook. [Reprinted from Public Health Reports.] From the States Relations Division. Prepared by Direction of the Surgeon General. Federal Security Agency, U. S. Public Health Service, Public Health Bulletin No. 184. Third edition. Paper. Various pagination. Washington, D. C.: Supt. of Doc., Government Printing Office, 1943.

This is the direct inheritor of the subject matter and critical consideration of state health services first put into book form by Dr. Henry I. Bowditch and presented by him in his address at the Centennial Exposition in Philadelphia in 1876 (Hygiene in America, Boston, Little, Brown & Co., 1877). Dr. Bowditch by personal correspondence and acquaintance with leading physicians and some other citizens of prominence across the continent gathered and presented the first account of the quantity and something of the quality of sanitary and communicable disease control in our states and territories of the post-Civil War period. This was followed by the classic report by Dr. Henry V. Chapin in 1915, published by the American Medical Association, describing the activities, equipment and accomplishments of the various state boards of health. In 1929 the U. S. Public Health Service published as Bulletin 184 the results of a survey made by the Health Division of the Rockefeller Foundation of the changes which had taken place between 1915 and 1925, together with new information of a financial, personnel and administrative character. A revised or second edition appeared under the same auspices in 1932, bringing the national experience on a state basis up to 1930.

The present bulletin, which is based on state organization for health services in 1940, includes functions of state health departments and activities spoken of as of a health nature which deal with the diagnosis and treatment of diseases as well as state government activities which contribute to public health work without being within the administrative framework of the health department. The eleven chapters are on the composite pattern of state health services, communicable disease control by state agencies, tuberculosis control by state agencies, venereal disease control by state agencies, sanitation by state agencies, medical and dental care by state agencies, maternal and child health activities of state agencies, industrial health activities by state agencies, central state services affecting all branches of public health work and state health department organization. The information covers the District of Columbia, the territories of Alaska, Hawaii and Puerto Rico, and Virgin Islands.

The chief innovation, with some controversial implications, and of interest alike to practitioners of medicine and to the personnel of health organizations, is the content of chapter VI, dealing among other matters with general medical care of the needy. Of much concern are the extent and variety of activities contributing in some respect to the health and medical care of the population carried on by state agencies other than the health department.

This is a valuable, technical, well documented and well presented report of one of the major functions of state government for the civil population under peacetime conditions. However good a state health organization, it cannot operate profitably in a vacuum, that is, under conditions of local civil government which do not provide full time health services for which city, county, multicounty or district communities are responsible, and supported with adequate appropriations from tax resources. This is an important historical document, revealing as it does the force and effect of the policy of the federal government to aid by money, grants and control through standards of personnel and performance, much of the health service within the states and their regional and county subdivisions. Students of sociology and civil government, of contemporary history, as well as workers and teachers of health administration, will find this interesting and essential reading. The chapters have appeared separately in *Public Health Reports* from time to time from Aug. 22, 1941 to April 2, 1943.

The Role of Nutritional Deficiency in Nervous and Mental Disease. Proceedings of the Association December 19 and 20, 1941, New York. Editorial Board: Stanley Cobb, M.D., Chairman, Edwin F. Gildea, M.D., and Harry M. Zimmerman, M.D. Research Publications, Association for Research in Nervous and Mental Disease, Volume XXII. Cloth. Price, $4. Pp. 215, with 23 illustrations. Baltimore: Williams & Wilkins Company, 1943.

These sixteen papers by prominent laboratory and clinical investigators with a special interest in nutrition, the vitamins and the respiratory enzymes constitute a valuable, but not now complete, review of the role assumed by these factors in the metabolism of the nervous system as evinced especially by the neurologic manifestations of their deficiency. The book is divided into two parts, the first on contributions from the fundamental sciences, the second on clinical aspects. The ensuing discussions of the papers as they were read are also printed and constitute a valuable adjunct to the formal presentation of each subject.

In the section on contributions from the fundamental sciences Cowgill calls attention to some of the difficulties inherent in both animal and human nutritional studies, difficulties which have led some less restrained investigators into hasty publication of premature conclusions. Elvehjem reviews briefly some of the known and biochemically important interrelations between certain of the vitamins and the respiratory enzymes of which they function as the prosthetic group. The interesting observations of Himwich on the demonstrable reduction of cerebral arteriovenous oxygen difference in states of thiamine deficiency in man support the pioneer experimental work of Peters, Ochoa and others on the role of diphosphothiamine in cerebral metabolism. This paper is marred by the application of such unfortunate terms as "neurotic" and "neuroses" to avitaminotic patients and their symptoms. The original contribution of Ferrebee and his collaborators on the thiamine content of human tissues represents another important step toward the application of quantitative methods in the study of thiamine metabolism in man. Zimmerman reviews the neural pathology of the avitaminoses and includes some excellent photomicrographs. The pathology of vitamin A deficiency is discussed by Walbach and Bessey, and that of alpha-tocopherol deficiency by Pappenheimer. The work of these investigators in their respective subjects is well known.

The section devoted to clinical aspects will be of especial interest to those clinicians who have attempted a critical appraisal of the legitimate place of vitamins in medical therapy. It should be read by those who have not. Wilder's careful and protracted studies of induced thiamine deficiency, recorded elsewhere in greater detail by Williams and his collaborators, are reported and an illustrative case history is included. The patients studied, however, were inmates of a neuropsychiatric hospital; little information is given concerning their previous emotional histories, and the simple statement that the significance of the subjective symptoms which they developed over periods ranging from ninety-three to one hundred and ninety-six days of thiamine deprivation depends on the selection of "noncomplainers" does not invalidate the criticism that they represent a poor group on which to base generalizations concerning the emotional manifestations of thiamine deficiency. Spies reports the relief of states of emotional tension in pellagrins by administration of thiamine, and Sebrell reviews briefly current observations on the mental and neurologic aspects of B complex deficiency. In an enlightening discussion of these three papers, Smith cogently points out differences in the material studied, especially regional dietary differences, which must be considered in evaluating symptoms and the efficacy of specific treatment.

Strauss, leading heavily on Meiklejohn's inadequate review to question the role of thiamine deprivation in the production of nutritional polyneuritis, reviews briefly other major causes of the peripheral polyneuritides.

Of great interest to the clinician will be the paper of Bowman and Wortis. These workers, who with Jolliffe have segregated from other encephalopathies the dramatic syndrome, usually encountered in nutritionally deficient alcoholics, of acute niacin deficiency encephalopathy and who have demonstrated that the

ophthalmoplegia of Wernicke's syndrome is reversible by thiamine, discuss in some detail these syndromes and also the neurasthenia of thiamine deficiency, Korsakoff's syndrome, delirium tremens and the cortical dysfunction associated with acute peripheral neuropathy.

In a well tempered final chapter on the prevention of nutritive failure and its cure McLester rightly points to the critical importance of both economic and educational factors in determining the dietary of the nation. Likewise rightly he deplores the indiscriminate consumption of pharmaceutic vitamin preparations, which has reached such ludicrous proportions in recent years. In this connection the clinician should familiarize himself with the recent carefully controlled studies of Keyes, which tend to throw grave doubt on much earlier and less cautious work.

In summary, the chapters on the clinical aspects of nutritional deficiency in nervous and mental disease illustrate that much careful investigation remains to be done, that there is urgent need for new and sensitive laboratory technics for the accurate determination of early nutritive failure, and that even now little is known about the vital interdependence of the vitamins of the B group.

The printing of this useful volume is excellent and marred by few errors. Xanthine, page 18, and trigonelline, pages 26 and 27, are misspelled. The National Research Council's recommeded minimal daily requirement for niacin is erroneously printed as 1.8 mg. instead of 18 mg. on page 139.

Hypertension: A Manual for Patients With High Blood Pressure. By Irvine H. Page, A.B., M.D., Director, Lilly Clinic, Indianapolis City Hospital. Fabrikoid. Price, $1.50. Springfield, Illinois: Charles C Thomas, 1943.

An accurate and illuminating explanation of disease states written for patients is often a useful aid to practicing physicians. Such patient "manuals" are particularly helpful when dealing with chronic disorders. Almost all patients when first informed that they have hypertensive disease are pathetically bewildered by what it is all about. Furthermore, the popular concepts of "high blood pressure" are as confused and as full of false belief as Axis propaganda. Therefore this little book should prove most useful as an introductory primer for hypertensive patients. The author has wisely adopted a dogmatic method of presentation. Every statement is justified by clinical experience or sound experimental observations. Where recent discoveries are mentioned, the author cautions against their overenthusiastic or blindly credulous acceptance; the healthy skepticism of the scientist is evident. The text in no way intrudes on the role of the attending physician in the management of hypertension; it does not advise but merely informs.

Only two, relatively minor, adverse comments appear justified. The dogmatic simple factual approach causes the style to appear decidedly elementary. Such manner of presentation is not infrequently resented by educated and intelligent lay readers; no one likes to be "talked down to." Secondly, though the condensation of much material into such a short essay is admirable, one has the feeling that brevity is overdone. There are many paragraphs, such as those dealing with the socioeconomic importance of hypertensive disease and the need for enhanced support for research, or the concepts of pathogenesis, and especially the importance of individualization in etiologic diagnosis and management, which could and should be considerably amplified. The condensation of material is such that only those fully acquainted with the problems of hypertensive disease can appreciate how much there is in this little book. The uninitiated, for whom it is intended, may miss much of the significance of the various aspects because of the extreme brevity.

As a primary manual for new patients with hypertension the volume can be recommended heartily. It is accurate, precise, neither alarmistic nor overly optimistic and answers many of the questions which such patients must inevitably ask. Thus it should save physicians much time. One of its most valuable attributes is that it should stimulate such patients to ask pertinent and intelligent questions. It should reduce the tendency to quackery and faddism now all too common in the so-called management of hypertensive disease. Patients who read and understand the section on diagnostic examinations will demand more thorough study than is usually undertaken.

A Short Practice of Surgery. By Hamilton Bailey, F.R.C.S., Surgeon, Royal Northern Hospital, London, and R. J. McNeill Love, M.S., F.R.C.S., Surgeon, Royal Northern and Metropolitan Hospitals. Sixth edition. Cloth. Price, 36s. Pp. 1,033, with 922 illustrations. London: H. K. Lewis & Co., Ltd., 1943.

The influence of the war is definitely imposed on this brief summary of surgical practice. This is by far the best edition of this standard English work. Former obsolete and outmoded concepts which appeared in reprinting after reprinting are gone, and in their places are features of genuine significance. Similar types of textbooks are rare in this country; the average standard work for students here is much more theoretical and undoubtedly superior for teaching purposes. The splendid illustrations on fine quality paper (surprising for a country hard pressed by war) are finer than in the average American textbook. A highly commendable feature is a brief biographic note which lends life to the abundant eponyms of which the British seem to be so fond. As is to be expected, traumatic conditions are especially well presented. Emphasis is laid on nerve injuries and injuries to the motor system generally, which are distinct problems in the present conflagration. The present edition admirably fills its intended purpose, and at times its very brevity is an asset.

Physiology of the Nervous System. By John Farquhar Fulton, M.A., D.Phil., M.D., Sterling Professor of Physiology, Yale University, New Haven, Connecticut. Second edition. Cloth. Price, $9. Pp. 614, with 112 illustrations. New York, London & Toronto: Oxford University Press, 1943.

The rapid advances in our knowledge of the physiology of the nervous system has led to a complete revision of this book. The author has conscientiously followed the current literature, evaluated the researches of others, included his own important work and incorporated all in what is virtually a new text. He has called on other workers to aid in expanding and clarifying certain chapters. A cooperative spirit has entered into the making of the book, thus greatly increasing its value. In presenting the most important recent advance in neurophysiology, namely the nature of synaptic transmission, the section was partly prepared by Dr. David Nachmansohn, one of the foremost investigators in the field. The original form of the book has been retained, with the useful historical introductions to each chapter. A smaller but clearer type has been used, and the references are now referred to in the text by author and year of publication. These and other changes make it more readable than ever before. The illustrations are clear, the bibliography and index excellent. The textbook, carefully brought down to date, sets a standard for a work of its type. If the first edition was considered a fundamental book, the second edition is of equal value.

The Physiological Basis of Medical Practice: A University of Toronto Text in Applied Physiology. By Charles Herbert Best, M.A., M.D., D.Sc., Professor and Head of Department of Physiology, University of Toronto, and Norman Burke Taylor, M.D., F.R.S., F.R.C.S., Professor of Physiology, University of Toronto. Third edition. Cloth. Price, 55s. Pp. 1,942, with 497 illustrations. London: Baillière, Tindall & Cox, 1943.

An accepted textbook of physiology again reaches a high standard of excellence, in this, the third edition. The impetus in medical research is especially reflected in physiology. It necessitates constant revision and a sifting process to present to the student simple and concise material. Best and Taylor have followed, as in previous editions, their concept of presenting physiologic facts as underlying clinical problems. A carefully selected bibliography and a wealth of digested material between its covers render it an unusual reference book for all practitioners of medicine. A careful perusal may lead to the conclusion that at times controversies as to theory have been taken up too fully. Thus fundamental and imperative physiologic facts may seem buried in a welter of detail. The section on blood clotting is a good example of how clearly an intricate mechanism can be described. Probably the important subject of shock has been undertreated. Chapters on the endocrine glands are typically illustrative of the authors' ability to present subjects with clarity in spite of the expanding state of knowledge regarding them. It is hoped that they will continue their admirable purpose and in further revisions maintain this book as a live vehicle for the presentation of physiology in the practice of medicine.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

VASECTOMY

To the Editor:—**A white man aged 29, diabetic and married, has four healthy children. Because he is diabetic and it is felt that there should not be more children, he wishes to be sterilized. I advised cutting the vas and told him it would not make any change in his sexual life except that he could not impregnate his wife. When the surgeon was consulted he informed the patient that he would lose 25 to 50 per cent of his sexual powers. Would you please give an opinion on the following questions? After the vas has been severed: 1. Will the sexual powers be changed? 2. From the brief history, is it the operation of choice or should the wife be sterilized? 3. Will this tend to shorten his sexual life? Is there danger of infection, and, if so, if the infection is severe, will it leave him as if he were castrated? I might add that this couple have intercourse each night and practice withdrawal.** **M.D., Iowa.**

ANSWER.—1. There is no convincing evidence to indicate that ligation of the vas deferens has any harmful effect on the sexual power.

2. There is a difference of opinion on whether the wife or the husband should be sterilized. There are some states that prohibit the sterilization of the male.

3. There is no evidence that vasectomy tends to shorten sexual life. There is always the danger of an infection when an incision is made, although in this particular type of operation the chances of an infection would be minimal if ordinary surgical antisepsis is maintained. The only way in which he could become a castrate would be for both testes to slough out completely as a result of the infection. This, although possible, would be one of the rarest of complications. The diabetes, provided it is under proper management, would be no contraindication for operation.

VINETHENE AND ETHYL CHLORIDE

To the Editor:—**Is vinethene a safer anesthetic than ethyl chloride for opening ear drums?** **Harold L. Snow, M.D., San Pedro, Calif.**

ANSWER.—The anesthetic properties of vinethene (vinyl ether, divinyl ether, divinyl oxide) were first observed in 1930 (Leake, C. D., and Chen, M.-Y: Anesthetic Properties of Certain Unsaturated Ethers, *Proc. Soc. Exper. Biol. & Med.* **28**:151 [Nov.] 1930). Ethyl chloride, on the other hand, was used for clinical anesthesia during the later decades of the past century and was studied carefully by Embley in 1902 and following. His experimental findings regarding ethyl chloride were published in detail in the American Yearbook of Anesthesia and Analgesia for 1917-1918, pages 140-152. His conclusions at that time were that it was "a relatively safe anesthetic agent if cardiac inhibition can be avoided." In 1930 Henderson and Kennedy (Ethyl Chloride, *Canad. M. A. J.* **23**:226 [Aug.] 1930) reviewed the work of Embley and others, collected reports of twenty-six deaths or "near deaths" and presented experiments of their own. They believed ethyl chloride to be a useful anesthetic demanding careful administration. Jacobs (Value of Ethyl Chloride in Extraction for Children, *J. Am. Dent. A.* **20**:1060 [June] 1933) reported 149,528 administrations for dental extraction without a death.

Gelfan and Bell described the first clinical use of divinyl oxide in 1933. The Council on Pharmacy and Chemistry made a preliminary report on vinyl ether in 1934 (Vinyl Ether, THE JOURNAL, Jan. 6, 1934, p. 44) and another report entitled "The Present Status of Vinethene" in 1937 (*ibid.*, Aug. 28, 1937, p. 656). The investigations of Goldschmidt, Ravdin and others (Divinyl Ether, *ibid.*, Jan. 6, 1934, p. 21) are thorough and favorable to the safety of the agent; the report of Hawk, Orth and Pohle quite the opposite)Hepatorenal Syndrome Following Administration of Vinethene: A Case Report, *Anesthesiology* **2**:388 [July] 1941).

No specific comparison of the safety of these two agents has been found in the literature. When properly administered, ethyl chloride produces a pleasanter induction and has been considered by many to be relatively safe. It has been given to a large number of patients. Vinethene is, on the other hand, a recent addition to the list of anesthetic drugs. From a review of the literature available at present, vinethene might be considered decidedly the safer for short administrations such as the incision of a drum membrane. In any event, an administrator possessed of knowledge of the particular agent and skill in giving it is a more important safety factor than is the drug which he elects to administer.

SURFACE TENSION OF BLOOD PLASMA

To the Editor:—**I am interested in obtaining information concerning the surface tension of the blood and plasma, especially drugs which will increase or decrease the surface tension. Any other information concerning alterations in the surface tension, physiologic or otherwise, will be greatly appreciated.** **Roy J. Popkin, Major, M. C., A. U. S.**

ANSWER.—It is unfortunate that really complete studies of the surface tension of plasma have not been made. This lack is probably largely due to the complex nature of the problem. The surface tension of plasma varies with the age of the exposed surface, and measurements made using dynamic methods where these surfaces are new yield relatively high surface tension values. Others have used surfaces aged varying lengths of time. Since the surface tension varies with the age of the surface, it is little wonder that results from various methods are divergent. Many of the methods used deal with surfaces of indefinite age. This is especially true of the drop-weight method and to some extent of the ring (duNoüy) method. It would be of considerable value to study much more completely the change in surface tension with time for many of these systems, using a method especially suited to this type of investigation such as the static pendant drop method recently developed.

Values given by different workers for the surface tension of normal human serum vary from about 70 dynes per centimeter with the drop-weight method to about 55 dynes per centimeter with the ring method under conditions where the value for water is about 74 dynes per centimeter. Values for plasma appear to be somewhat larger (perhaps 75 dynes per centimeter by the drop-weight method).

Various conclusions have been reached concerning the surface tension in pathologic serums. In many pathologic serums values slightly lower than normal (2 to 5 dynes per centimeter) appear to be observed, but even in any particular disease this result is not obtained by all workers. Thus syphilitic serums have been reported to give (1) a slight lowering of the average surface tension, (2) a definite increase and (3) very little difference from normal serums. A somewhat larger decrease in the surface tension value for syphilitic plasma has also been claimed. These results are representative of the uncertainties of these studies, and equally discrepant results are reported for other pathologic serums and plasma. It has been concluded by Dr. duNoüy that true surface tension effects in living organisms are rare and of relatively little importance.

Changes in surface tension of serum due to various conditions have often been reported. A drop in surface tension (2 dynes per centimeter) within twenty minutes after eating, followed by a rise to normal in about an hour, has been observed by several workers. A somewhat larger effect on the surface tension following the ingestion of allergenic foods has been observed by others. Feeding cholesterol to rabbits decreased the surface tension. Radioactive water also is said to give rise to a decrease in surface tension.

The surface tension of serum, and especially plasma, appears to be considerably lowered (drop-weight values by as much as 9 dynes per centimeter) in anaphylactic shock. Considerably smaller decreases have been observed following intravenous injections of bacterial proteins, epinephrine, acetylcholine, atropine and possibly histamine. Intravenous injection of normal human serum causes a slight decrease of the surface tension of rabbit serum. Injection of a small amount of octyl alcohol dissolved in dilute ethyl alcohol caused a pronounced decrease in surface tension of the serum lasting for only a few minutes. Repeated injection after a short time gave a stronger and more lasting effect. A third injection usually caused death. Benzopyrene, injected into human subjects and animals with tumors, caused a decrease in serum surface tension. Bile acids and salts lower the surface tension of serum, but several tenths of a per cent must be present to produce an appreciable effect. Heat inactivated serum also appears to have a lower surface tension than the fresh serum.

Use of parathyroid injection in rabbits caused an increase in the surface tension of plasma, reaching a maximum in thirty minutes, followed by a decrease to normal taking six to forty-eight hours. An increase in surface tension was observed when horse serum was diluted with a solution of methylene blue. Pilocarpine has been reported to cause an increase in surface tension when injected intravenously.

Again it should be stated that these results are in many cases somewhat uncertain and that more adequate studies of the surface tension need to be made.

RESISTANCE TO POLIOMYELITIS AND NUTRITION

To the Editor:—Recently I have had under my care 3 patients with poliomyelitis. The first patient had typical spinal fluid findings, followed by paralysis of the inferior extremities and intercostal muscles and is still in the respirator. The second patient, whom I saw a few days later, was a cousin of the first child and had been intimately exposed to the first patient. I saw her twenty-four hours after the onset of fever and vomiting. Physical examination, blood count and urine were not diagnostic. A spinal puncture revealed 27 cells with a differential of 78 per cent polymorphonuclears and 22 per cent lymphocytes. This child was first given 1,000 mg. of ascorbic acid intramuscularly and then 500 mg. twice daily. The elevated temperature subsided completely after about two days and she has never shown any evidence of paralysis. The third patient is a 10 months old sister of the first patient and unquestionably has infantile paralysis. This child was seen about twenty-four hours after onset, with symptoms of fever, vomiting and irritability. Physical examination, blood count and urine were not diagnostic. Spinal puncture revealed a cell count of 55, with 80 per cent polymorphonuclears and 20 per cent lymphocytes. This baby likewise was given 1,000 mg. of ascorbic acid intramuscularly on admission and 500 mg. twice a day thereafter. She has had the same course as the second patient; that is, the elevated temperature subsided after about two days and there is no evidence of any paralysis. Has there been any research work done on the use of massive doses of vitamin C in the preparalytic stages of poliomyelitis? I realize that a great many cases do clear up without paralysis and that probably the two of my cases that did might have been cleared without the vitamin C.

M.D., Texas.

ANSWER.—The relation of nutrition to resistance in poliomyelitis has received the attention of several investigators, but the results have been variable. Large doses of ascorbic acid were reported by Jungeblut to protect monkeys against intranasal inoculation with poliomyelitis virus, but Sabin was unable to confirm this observation. Toomey reports divergent results in vitamin D deficient animals and entirely negative results in vitamin A or vitamin B complex deficiencies. Sabin and his colleagues found no increase in susceptibility in frankly rachitic monkeys. Ward, Sabin, Najjar and Holt studied the urinary excretion of thiamine, riboflavin and nicotinic acid in a series of acute human cases and found no differences in excretion levels between the normal and poliomyelitis cases. The several human series in which the various known vitamins have been employed have been too small, inadequately controlled and too irregular in results to merit any conclusions:

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EFFECTS OF TURKISH BATHS ON HYPERTENSION AND HYPOTENSION

To the Editor:—What is the consensus as to the effect of Turkish baths in hypertensive and also hypotensive cases?

M.D., New York.

ANSWER.—A consensus has not been formulated. As arterial hypertension exists because of arteriolar hypertonicity, with or without arteriolar sclerosis, the external heat of a Turkish bath causes a temporary reduction of the tension through peripheral vasodilatation. Extreme changes in environmental temperature are usually unwise for patients with hypertensive disease. The hazards from hot baths for such persons are threefold: 1. Too rapid and severe a reduction of the arterial tension during exposure to heat, inducing relative hypotension, thus predisposing to thrombotic occlusion of cerebral and/or coronary vessels, especially in the presence of associated arteriolar sclerosis and/or coincident arteriosclerosis. 2. Depression of the cardiac vigor (heat is often very depleting to those with reduced cardiac compensation). 3. A frequent and often exaggerated rebound of the arterial tension to levels higher than before the bath, after the exposure to heat has terminated. This last type of undesirable reaction is prone to occur especially in those with hypertensive disease in the spastic (pre-arteriolar sclerotic) stage. Though many people enjoy Turkish baths and are "relaxed" by them, these risks must be considered. There are many individual exceptions to such generalizations, and the only effective procedure is to observe the circulatory reactions of the individual during and especially after the bath. On the whole, they are best deleted from the routine habits of hypertensive patients. Lasting benefit is not to be expected at best.

Arterial hypotension is, of course, aggravated by exposure to a hot environment. There may be, however, a beneficial reaction afterward. Here again each patient should be considered individually. Short cold plunges followed by brisk rubs are far more likely to be beneficial in hypotension. As a general rule Turkish baths are not well tolerated by either hypertensive or hypotensive patients.

CHEMISTRY OF BILIRUBIN AND HEMOGLOBIN

To the Editor:—Would you kindly give me a brief summary of what is known at present regarding the chemistry of bilirubin?

M.D., Texas.

ANSWER.—Bilirubin is formed from hemoglobin mainly in the liver in the course of the destruction of the red corpuscles, but it is also formed in other tissues especially when the red corpuscles have left the vascular system and hence a local destruction of hemoglobin occurs. The chemical process involves the splitting of hemoglobin into globin (a protein) and protohematin (a porphyrin or tetrapyrrole derivative containing iron). In the next step the protohematin loses its iron, and iron free protoporphyrin is formed. The protoporphyrin ring structure is next modified by opening the ring with the loss of one carbon atom. The empirical formulas for the latter reactions are

$$\underset{\text{Protoporphyrin.}}{C_{34}H_{34}N_4O_4} + 2O_2 \longrightarrow \underset{\text{Biliverdin.}}{C_{33}H_{34}N_4O_6} + CO_2$$

$$\underset{\text{Biliverdin.}}{C_{33}H_{34}N_4O_6} + 2H \longrightarrow \underset{\text{Bilirubin.}}{C_{33}H_{36}N_4O_6}$$

It is obvious that biliverdin is an oxidation product of protoporphyrin as well as of bilirubin and that bilirubin is a reduction product obtained from protoporphyrin by the loss of one carbon atom. Bilirubin is still a tetrapyrrole, but it does not contain the ring structure of hemoglobin.

Bilirubin is a weak acid due to the two carboxyl groups. As such it is insoluble in water, but the sodium salts are soluble. The free bilirubin is readily soluble in chloroform and alcohol but soluble with difficulty in benzene or ether. The calcium salts are insoluble in water. Bilirubin is red, but when oxidized it is converted into blue and green pigments. This is the basis of the Gmelin nitric acid test for bile pigments. When treated with diazo benzene sulfonic acid (Ehrlich's diazo reagent) an intense red color develops. This is the basis of the Van den Bergh test.

DIFFICULTIES IN DELIVERY OF TWINS

To the Editor:—In a case of twin pregnancy with one breech and one cephalic presentation, if the breech is first to engage in the pelvis what are the probabilities so far as interlocking of the heads in the latter part of labor is concerned? Is the risk of interlocking under those circumstances sufficient to justify cesarean section without a test of labor?

Lindsay Peters, M.D., Van Nuys, Calif.

ANSWER.—The likelihood of the fetal heads interlocking is more academic than real. In fifty thousand deliveries during the last seventeen years no such complication has ever occurred. This rare hazard in the delivery of twins certainly does not justify an elective cesarean section.

Difficulty encountered in the delivery of the first baby should excite suspicion of possible locking of the fetal heads. The patient should be placed in the Trendelenburg position and under deep anesthesia; the fetal heads can be palpated and, if necessary, the second head can usually be dislodged from the pelvis. If this cannot be accomplished, it will be necessary to decapitate the first baby to allow the delivery of the second baby.

PHYSICAL EFFICIENCY AND TOBACCO SMOKING

To the Editor:—I have just read the strange statement of Dr. Segard on page 124 of The Journal of Sept. 11, 1943. If the doctor will examine the work of Wright and Moffat (The Journal, Aug. 4, 1934, p. 118) and of Maddock and Coller (*Ann. Surg.* **98**: 70 [July] 1933) he will find convincing proof of the constricting effects of nicotine on terminal blood vessels. If he will study the clinical work of Silbert in 350 cases of Buerger's disease (The Journal, Sept. 27, 1927, p. 964, and May 31, 1930, p. 1730), which was corroborated by Samuels (The Journal, March 7, 1931, p. 751, and Feb. 10, 1934, p. 436) he will have further convincing proof of these constricting effects, for the pathologic processes in Buerger's disease and coronary disease are identical and Buerger's disease occurs only in smokers, while coronary disease is six times as prevalent in smokers as in nonsmokers according to the clinical studies of English, Willius and Berkson of Mayo's. Doctors who smoke should be warned concerning the coronary constricting effects of tobacco, particularly any increase in the shortness of breath. It is time that doctors, most of whom are heavy smokers, should take time out to read and study the works mentioned as well as the more recent work of Dr. Pearl of Johns Hopkins (*Science* **87**: 216 [March 4] 1938) on comparative mortality rates.

F. L. Wood, M.D., Lynden, Wash.